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Journal of Psycho-Asthenics.

Devoted to the

CARE, TRAINING AND TREATMENT OF THE FEEBLE-MINDED AND OF THE EPILEPTIC.

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PRESIDENT'S ANNUAL ADDRESS.¹

BY GEO. A. BROWN, M. D., BARRE, MASS.

Inasmuch as this year marks the fiftieth anniversary of two of the institutions for feeble-minded in America, it has seemed to me not unfitting to look backward, and quoting largely from the writings of those at the head of these two schools, inform ourselves anew of their aims, aspirations and ideas, as an inspiration and encouragement in our daily round of work in our several places of activity. Fifty years ago this year, in the State of Massachusetts, were begun the first private and the first public schools for feeble-minded children in America. In June, 1848, Dr. Hervey B. Wilbur, then a young practicing physician in the country village of Barre, received his first pupil. In a circular issued Jan. 1, 1851, by Dr. Hervey B. Wilbur, relating to his private institution for feeble-minded at Barre, Mass., he states (page 18):

"This institution is designed for the management and education of all children who by reason of mental infirmity are not fit subjects for ordinary school instruction. And lest this plan should seem too comprehensive, I may mention that they all have in common a want of will, a want of spontaneousness,

¹ NOTE.—Read before the Association of Medical Officers of American Institutions for Idiotic and Feeble-minded Persons, Vineland, N. J., May 26, 1898.

a want of the power of fixing the attention, and a want of development of faculties, to a greater or less degree." "The problem of education," says Seguin, "for all such cases consists, not in the substitution of an unaccustomed mode of perception for modes of perception which do not exist, but resides simply in the possibility of regulating the use of the senses, in multiplying the notions, in making fruitful the ideas, the desires and the passions of creatures who, left to themselves, would remain without proper relations with the external world." Wilbur continues: "It aims to nourish and encourage the growth of what may be mere germs of functions and faculties, to direct these functions and aptitudes in the natural channels of physical and mental labor, and to give to the subjects of it the greatest possible resemblance to children well endowed and properly educated."

In October, 1848, Dr. S. G. Howe, long before interested for this class, was happy in beginning the experimental and first school under state supervision for feeble-minded children. In the first report to the state board, he says:

"Now it is proposed not only to train and develop as much as possible the feeble intellectual powers of the idiot, but also to call out and strengthen the dormant or feeble capacities of every part of his nature. The most of them are now left in ignorance and in idleness. Nothing being done to improve their condition, of course it must grow worse.

"It is proposed, therefore, to show our reverence for God's plain will, and to acknowledge the common brotherhood of man, by taking these, the most unfortunate of his children, and attempting to lift them up to a place, humble though it be, upon the common platform of humanity. It is hoped to train them up to cleanliness and decency, to prevent or root out vicious and debasing habits, to moderate gluttonous appetites and to lessen the strength of the animal nature generally by calling into some activity the higher feelings and desires and by substituting constant occupation for idleness. It is proposed to train all the senses and perceptive faculties by

constant and varied exercise, to strengthen the power of attention, to teach as much as possible the rudiments of knowledge, to develop the muscular system, and to give some degree of dexterity in simple handicraft. Efforts will be made to call out their social affections, and to lessen their inordinate selfishness by awakening some feeling of regard for others in return for kindness and love manifested towards them. The still harder task will be attempted of appealing to the moral sense, and drawing out what little capacity there may exist for comprehending right, for exercising conscience, and for developing the religious sentiment. It is hoped that part of them will gain some really useful knowledge, that most of them will become cleanly, decent, temperate, industrious, and that all of them will be better and happier for the efforts made in their behalf."

In his first annual report of the New York State Asylum (Jan. 23, 1852), Wilbur writes:

"We do not propose to create or supply faculties absolutely wanting, nor to bring all grades of idiocy to the same standard of development or discipline, nor to make them all capable of sustaining creditably all the relations of a social and moral life; but rather to give to dormant faculties their greatest possible development, and to apply those awakened faculties to a useful purpose under the control of an aroused and disciplined will. At the base of all our efforts lies the principle, that the human attributes of intelligence, sensitivity and will are not absolutely wanting in an idiot, but dormant and undeveloped." (Pages 16, 17.)

"As a matter of practice, we have to deal mainly with those where we can, with but a superficial observation, detect the rudiments and germs of proper physical, mental and moral endowments. Let me present briefly to your attention some of the special means for awakening the dormant powers and faculties of our own pupils. In the first place, where the idiocy is dependent upon a very marked physical imperfection or infirmity, and this of a curable character under the application of proper

remedial means, as in the case of Cretins in the Alpine valleys, of course, suitable moral training, conjoined with proper remedial measures, will result in the complete removal of the idiocy. A multitude of well authenticated cases of complete restoration from the lowest grades of idiocy connected with Cretinism to a well developed and disciplined intelligence sufficiently attest this opinion. Such cases of extreme physical deprivation, and at the same time so yielding to the proper restorative agencies, will constitute the exceptions in idiot asylums in this country. Still the physical causes and symptoms will always be so prominent as to direct the first efforts of the teacher toward the physical training of the idiot. These physical exercises will have the object of establishing the control of the will over the muscular system, of cultivating the imitative faculty, and of fixing the attention of the pupil.

"Then we have recourse to what may be more strictly regarded as educational means. These means, compared with the exercises in the ordinary educational system, are as much more varied and comprehensive as the peculiarities and obstacles in the way of instruction are greater in the one case than in the other. In the case of ordinary children, all the natural channels of communication between the mind and the external world are open. In addition, the mind sits alive and awake to receive and appropriate to itself the facts and phenomena communicated through those senses. Sensation is a law of their being; perception is the next natural step from sensation, and memory, comparison and judgment as naturally follow.

"Educated by these simple intellectual operations, their minds turn inwardly, and with the exercise of consciousness, become capable of comprehending the laws of mind. Their wills undergo a simultaneous development through the reciprocating influences of intelligence and will.

"In the case of our pupils, as we have seen, these natural avenues between the mind and the world of relation are more

or less obstructed; and not only so, but the mind itself, inert and feeble, sleeps while the dull sensations are calling faintly for entrance. Their sensations are imperfect; they awaken no perceptions, or, if any, but indistinct and limited; and consequently, faint and feeble will be, if any, the mental operations that follow. To obviate these conditions, we educate the senses till they perform their office with correctness, precision and celerity. We increase the faculty of imitation; we awaken the perceptions, securing correct notions of surrounding and familiar objects; we excite a healthy curiosity; we cultivate the memory and comparison; we arouse the will by appropriate stimuli, producing activity, spontaneousness and self-reliance; we nourish the feeble flame of emotions, desires, affections, and a proper sense of right. During all this course, our ceaseless efforts will be to reform improper habits and teach the proprieties of life”

Dr. S. G. Howe, in the report to Governor Boutwell of Massachusetts (Feb. 11, 1852), as to the state experimental school, says (page 3):

“The moral results of this experiment are not so easily measured and set forth to the common understanding, but if there were a measure by which to mete the value of improving the bodily health, of reducing gross animal appetites into human moderation, of breaking up vicious and debasing practices, and of exchanging filthy habits for cleanly ones; if there were a currency to represent the price of intellect dawning from a night of darkness, and of moral affections, springing up from a chaos of selfish desires; above all, if there were a standard by which to show the worth of happiness to parents, teachers and friends at beholding the progress of our unfortunate pupils, and the moral advantage to the community of a triumph over seemingly insuperable difficulties in the way of human improvement; if these measures and standards of value existed so as to set forth the profit in numbers, it would far exceed the cost that has been incurred.” (Page 11.)

"This establishment is called a school, and it is a link in the chain of common schools—the last, indeed, but still a necessary link in order to make the chain embrace all the children in the state. It is destined for scholars of the lowest grade of intellect, for those lower even than the youngest children in primary schools. They cannot go about alone; they cannot go to the common schools; they cannot talk; they can hardly think. There must be a school expressly for them, or they must be neglected. Unusual efforts must be made to teach them to read and write and cipher, and to do other things which common children do almost by instinct. It is true that these things are done only as a means to an end; only as exercises for exercising and strengthening the feeble mental powers. A common school, as usually conducted, is a place for teaching only; a school for idiots should rather be an establishment for training. It should be a true gymnasium for body and mind."

With these high ideals held ever before them, Drs. Wilbur and Howe labored long and faithfully with the few pupils under their care. By experience they learned what methods to adopt for the different classes of defectives in their care, and in time evolved those modes of teaching used universally for the instruction of this class. Their system of instruction was well founded on the theory of Seguin,—mental development by means of sense training. To reach the mind through the senses was their constant effort, and to this their energies were bent through many long, tiresome years of labor. Success crowned their efforts in due time, and the Massachusetts State Institution at South Boston, developed under Dr. Howe's care, while Dr. H. B. Wilbur, transplanting his school in 1851 from Barre to Albany (moved 1854 to Syracuse), labored as earnestly and faithfully to build up the institution there.

From the efforts of these men, who, in this little way, beginning with a few unfortunate defective intellects, by their will power and energy, constant effort and persistent instruc-

tion, led these feeble minds upward on the paths of knowledge till some of them blossomed into almost average intellects, other men in other states were inspired to do likewise, and there grew up the institution at Elwyn in 1852.

Sprung as an offshoot from the Massachusetts state school (for Mr. J. B. Richards, whose private school formed the nucleus of Elwyn, was the first instructor at South Boston), Elwyn has far outstripped in size the Massachusetts state institution, accommodating to-day 1,100 persons, and in its turn promoting other institutions in the West by training up superintendents.

Ohio, in 1857, at Columbus, came into line, and Connecticut in 1858 added its institution to the number doing this Christian work. You know the rest; how one state after another has come into line, till to-day, out of the forty-five states of our Union nineteen have provided twenty-four training schools for this class of persons, and there are a dozen private schools in addition. Yet out of the 100,000 feeble-minded persons said to be in our country scarcely 8,000 are yet provided with school training or care.

The early workers in the field of the education of this class held up high hopes that a considerable percentage would be elevated intellectually to the average plain of individuals in society at large. As years went on, and the number of cases on record grew greater, this hope was seen to be chimerical, and the later reports of our first workers in this field show that their hope for training this class to fill their places in society was given up, and a proportionate development only was expected. This is what the superintendent to-day expects: some elevation intellectually of each individual intrusted to his care, but not a making over of the imperfect, enfeebled, undeveloped brain into a perfect, strong, vigorous intellect. As expressed by Dr. Geo. Brown in his report for 1861 (page 8): "We do not propose to create, but simply, by every possible appliance and incentive, to bring into visible practical relations

those faculties, already created, which know not how to receive or give."

As with the intellect, so with the will. We do not expect to reform wholly the feeble moral will of this class of persons, but to do as much as possible, according to the individual capacity of each, is the aim of our training to-day. As the brighter class of feeble-minded persons are, with their weak wills and lack of judgment, influenced readily for evil by designing persons, and thereby made to swell the ranks of criminals, inebriates and prostitutes, it is absolutely needful that they be kept apart from these evil associations. Otherwise, society will be forced to pay the penalty in increased pauperism and crime, and be compelled to support large numbers of delinquents and degenerates in hospitals, prisons and jails, perhaps for long years. It has been demonstrated by investigations in these directions that to prevent these evil results society should assume charge of adult idiots, and as a matter of economy retain them in asylums, under proper restrictions. We believe in state care, during life, of these unfortunate persons. Public sentiment has been awakened, and it will not be long, we trust, before the asylum feature for this class of defectives will be generally adopted. There is room for great energy and labor in attaining this desirable result.

To-day the institution established under Dr. S. G. Howe, first at South Boston as a department of the Institution for the Blind, later (October, 1851) made a permanent state institution by the legislature of Massachusetts, and given a home of its own at South Boston, and then transferred (1890-91) to its present magnificent site at Waltham,—to-day this institution stands as the type of the best form of state institution. Without elaborately adorned buildings, but provided with every essential of the paraphernalia of such an establishment, it ranks with the best of the institutions of this kind in the world, accommodating 600 children. Our Barre private institution, also fifty years old this June, has grown slowly up to its present capacity of ninety, in four living buildings, with all accom-

modations, and 260 acres of land. Dr. H. B. Wilbur left it in 1851 to build up the New York State institution. Dr. George Brown, then a young physician living in Barre, was induced by Dr. Wilbur to take five of the pupils he had trained. With this nucleus, in the words of Mrs. Brown (*Journal Psycho-Asthenics*, June, 1897, page 140): "We accepted the charge after due consideration and commenced our duties Sept. 1, 1851. To the rear of the mansion which lodged these pupils was then attached an unfinished portion of another edifice. * * *

Here then, was the workshop where we endeavored to continue the ways and methods of our predecessor, remaining eighteen months before moving to more spacious and better arranged quarters. We were teachers, supervisors and attendants by turn, with a single domestic in the kitchen. The children sat with us at table that we might seek to cultivate good habits of eating, or in the sitting-room that we might direct their ways and continually prune their uncouth habits of body. Our boys were marked types of this defective class, each one an object lesson for our instruction. * * * Such intimate association gave us practical insight of the characteristics, needs and ways of reaching such darkened minds. When our helpless ones were safe in bed, we sat down to read M. Seguin's "*Traitment Moral, Hygiene et Education Des Idiots*."

Dr. Geo. Brown, through his life devoting his entire energies to the upbuilding of this establishment, and by its means brightening and uplifting the lives of many unfortunates, passed on to his reward May 6, 1892, mourned by the entire community where he dwelt.

And now, what of the future? Does it not seem within bounds to expect that another fifty years shall see all of our states added to the quota who care for the dependent feeble-minded folk, shielding them from the jars and rough treatment of the world, and furnishing a safe haven where they may learn to use to the utmost their feeble, imperfect powers, mental and physical, and, praise the mark! in some few states live out their harmless lives in quiet routine existence, safe from all

criminal tendencies and experiences, until the Father of all says to them, as he said in the creation time, æons ago, "Let there be light," and the imperfect things of this world are transformed into the perfectness of the unseen world, the earthly into the heavenly.

We hear a deal in these days of manual training. It is the fad of the educator, the slogan of the teacher. Looking back fifty years to the small beginnings of the schools for feeble-minded, what do we find their teachers endeavoring to do? To train the hand, the eye, the senses, and through these avenues seek to reach the mind within. Manual training, in very truth, has been the method *par excellence* of reaching the feeble, imperfect minds in these schools, and this method so long faithfully and successfully practiced by our schools is now the latest method of the modern teacher. The way to teach normal minds has been that practiced for abnormal these fifty years. It is no new discovery; it is a proof of the truth of the observations of Seguin on education, as expressed in his book on "Idiocy," first published in 1846, and which is the Bible of the teacher of the feeble-minded, and a never failing source of information to the pedagogical enquirer to-day. Graduates of pedagogical schools examine and measure our children in every possible way, and write learned treatises on their investigations; but all they can tell us we find stated as well or better by our master teacher, Edward Seguin, over fifty years ago.

The unfortunate epileptic, whose almost hopeless existence has by sufferance had a place in institutions of this kind, is having his wants and case attended to. It is a great satisfaction to me, as I know full well it is to you, to record the fact that three of our states now have special institutions for epileptics, under state care (two of these on the colony plan), Ohio and New York, and Massachusetts was added to the list May 2, 1898.

Nearly all the early workers in this field have left to us the work they so faithfully, earnestly and zealously carried forward. Through their efforts the work is established. No one

who is intelligent questions for a moment its utility. We know by experience its usefulness. The enlightened state to-day assumes without question the care of its defectives of all kinds. This movement will become general, and spread from Maine to California, from Alaska to the Gulf, if we but add our mite to the impetus of the ideas of our honored predecessors.

Let me close by quoting the words of my honored and beloved father as to our spirit (Report 1858-59, page 10): "That spirit alone which actuates the missionary to give up in a large degree his personal comforts and devote himself to the good of his fellows must be the moving one of him who would successfully engage in this cause. He must at all times be able to soften and quiet the boisterous, awaken the sentiments of kindness and love in the violent and wayward; he must cheer the drooping and melancholy, and arouse the torpor of the sluggish, encourage the timid and soothe the apprehensions of the weak. To him there is no respite, no vacation, no Sabbath of rest, but rather always and without remission to moderate and direct into their proper channels the excesses of the body, and develop, little by little, the germ of mind committed to him for its unfolding."

MORE NATURE STUDY IN SCHOOLS FOR FEEBLE-MINDED.

BY E. R. JOHNSTONE, VINELAND, N. J.

Do let us have more "nature study" in our schools. Much is said, but little or nothing is done. It is not necessary for us to have elaborate materials or expensive laboratories. In every institution there is abundant material; on the lawns, in the groves—yes, on the window panes. Teach a child to understand the bird, its nest, its little family, its love, and his ever-ready affection springs forth to make a friend of what was merely a passing object. We wish to train our children morally, mentally and physically. Nature furnishes the surest and easiest way to do this. If you would improve the morals, teach your child to love Mother Nature in all her aspects. Let him know something of the beauties of God's great earth, and how good he has been in every way. Every leaf, every bud and flower, wings, fins and fur, teem with morality.

There is no end to the mental training nature study affords. Close observation, attention,—how we long for them in the schoolroom! Why do they fail there? There is so much of interest for a real live child, who moves, and thinks, and acts; so little for the backward and deficient child, who must be powerfully moved to make him think and act. Give him nature. Here is something tangible—real, live. It can move; make a sound, perhaps. He wonders how and why; reasons a little (somehow we could never get him to do the simplest reasoning in the number class). He makes comparisons, perceives things that never before made any impression upon his brain, and the elements of knowledge become his.

The physical side is perhaps the most important with us. To find Mother Nature at home, the child must get out in the air, move, take exercise. Sense training comes in. After we know where our child is, and where we wish to take him, we must know *how* we shall take him. The senses furnish the way. They are the wires which carry messages from Nature to the brain. Imperfect wires send distorted messages.

Let us get outside with God and Nature. When our child opens his eyes, every object furnishes a living color and outline. Here are forms and sizes without end for the uncertain hand. Teach the ear to recognize sound and density. Have the tongue taste and the nose smell. What if your child can't learn names. You are only teaching names incidentally. What you are really doing is strengthening brain matter. Every time the child tastes, the taste center is made stronger; when he smells, he develops brain cells at the center of smell. This is a matter of development entirely too big to be hampered by waiting for names, and yet one teacher after another "can't teach nature study because children are not old enough or bright enough to know the names of the things about which they are talking!"

MINUTES OF THE ASSOCIATION.

TWENTY-SECOND SESSION.

The twenty-second session of the Conference of Superintendents of Institutions for the Feeble-Minded was held in Vineland, N. J., May 25, 26 and 27, 1898.

The first business session was called to order on Thursday morning, May 26th, by the President, Dr. George Brown of Barre, Mass.

A welcome was given to the conference by Hon. Benj. F. Lee of New Jersey, who spoke in substance as follows:

Ladies and Gentlemen: It affords me great pleasure to extend to you the heartiest welcome. It is true that there is a verse which says that a man when he has a feast gives the best wine first, but I think the best way is to give to one's friends the best of the vintage at the conclusion of the feast, that they may carry with them the most pleasant recollections of the entertainment, and so we shall do here.

It gives me great pleasure in the name of my board and in my own name to extend to you a hearty welcome to this state and to this institution. I congratulate you on this auspicious occasion, and I hope that you will find in it a great success. We hope to get a great deal of profit from it ourselves. It is not for me to argue the need of institutions of this sort, and the wise economic policy of the state in perpetuating them. Nor is it worth while for me to attempt to advise you as to the methods necessary for the management of an institution of this sort; you know it better than I do, and no words of mine can be as eloquent as the needs of these shattered beings themselves.

A telegram from the governor of New Jersey was read expressing his regret that his duties prevented him from being present.

Mr. Alexander Johnson of Fort Wayne, Indiana, was asked to respond for the Association.

Mr. Johnson: Mr. President, Ladies and Gentlemen: I assure you, on the part of the Association, a great deal of pleasure at receiving so warm a welcome as has been given us here. We should like to see this beautiful village in sunshine, but one does not need the sunshine to perceive the charming hospitality of this home. From the moment we arrived there has been some one to look after us, and we have been taken as good care of as though we had been some millionaire in the hands of his expectant heir.

The work we are engaged in ought to be the most humane, the most Christian, as it is the most necessary, of all the works of charity. We believe that properly prosecuted it is absolutely essential to the safety of the commonwealth. If this work shall not be done as it is done under this roof, and if it be not extended till all those who by reason of mental deficiency are unable to take their places as men and women in the world, are taken into the mild care of the good mother state, the increase in crime and pauperism, in insanity and imbecility, and all those other frightful inflictions on humanity, will continue. Our only safety for the future of this country, our only hope, is, that all these poor people shall be gathered into safe care,—all of them, and not only ten per cent of them, as now.

We have been talking of coming here for many years, and when we really came down to this delightful commonwealth we expected a royal welcome, but you have surpassed our highest expectations.

The first business was the election of new members. On the motion of Dr. Rogers, the Secretary, the following persons were elected active members: Dr. Frank W. Keating, Owings

Mills, Md.; Dr. J. L. Long, Frankfort, Ky.; Mr. E. R. Johnstone, Vineland, N. J.; Dr. M. L. Brownell, Newark, N. Y.; Dr. J. Madison Taylor, Philadelphia, Pa.

On motion of Dr. Dunlap, the following persons were elected honorary members: Hon. B. F. Lee, Trenton, N. J.; Mr. Z. K. Pangborn, Jersey City, N. J.; Mr. Barton T. Thorn, Crosswicks, N. J.; Mr. Chas. H. Anderson, Vineland, N. J.

On motion, the President appointed the following committees:

Committee on Organization—Dr. Knight, Mr. Johnson and Dr. Polglase.

On Time and Place—Drs. Fernald, Fort and Murdoch.

On the Journal—Drs. Carson, Mogridge and Wilmarth.

Dr. Geo. Brown, the President, read the annual president's address. (See page I.)

An address entitled, "Nasal Reflexes and the Aggravation of Mental Symptoms in the Feeble-Minded," was given by Dr. J. Madison Taylor of Philadelphia.

DISCUSSION.

Dr. Wilmarth: Acute infantile diseases, measles, eruptive fevers, etc., are prominent in causing mental and nervous disturbances. When a child comes into our hands it is usually past any remedial measures. Parents justify themselves often by saying that the physician told them to wait. I have a child that has just come in. It was taken three months ago with convulsions for several hours, after measles, and with paralysis on one side. They went to three physicians, and the last one said that the child did not need any treatment whatever. The paralysis is gradually disappearing, but there is a general condition of excitement and wakefulness and crying that denotes cerebral irritation. It is only because they already have warm friends in our institution that they brought him in. To whom belongs the responsibility? Not to us, because we do not see

the child usually until it is too late. Can the general practitioner be induced to look into these cases more particularly?

Mr. Alexander Johnson: We are much indebted to Dr. Taylor, because, coming from an outsider, what he says has more effect than what we say among ourselves. We meet so often, and say the same thing to each other, and tell what beautiful things we would like to do, that to have this word come in from the outside is refreshing. But how does he propose to mingle the imbecile with other children,—with bright children? It would be nice for the bright children! Our old leaders used to sacrifice their own children and themselves, too, to the cause, but I think it was mistaken devotion. With regard to knowing more intimately the needs of those with whom we are concerned I think the greatest lack is of good medical work. You remember that when Mary sat at the feet of her Master, Martha was cumbered with much serving. The greatest lack is first-class medical work. The physician in charge has too many things to do beside medical work. Some are stewards; many are supervisors. They are occupied with all sorts of material things that are not medical, and the consequence is that close personal attention to those who need the work of the physician does not take place. The physician should have nothing to do but his medical work, and there should be a good physician, devoted to the work, who should have no material care. He should have nothing to do with serving bread and butter. He should decide whether the children should eat "H-O" and bolted wheat flour, but he should not have anything to do with serving tables. And when you have a good physician in charge of the medical work, consultations can be used to good advantage, because here is some one who is on the higher plane of medical work. I believe many of the institutions lack that thorough, close, persistent medical work that is necessary for the feeble-minded. I was interested to find out how much heart troubles have to do with mental defects. We are pursuing a series of examinations, and we

are really alarmed at the number of cases with heart disease. I hope the medical inspection of schools may be established everywhere. It is very necessary that all ordinary schools should be inspected by medical officers, and the abnormal discovered and segregated sooner than they are now.

Dr. Fernald: My experience with consultants has been unfortunate. We are near a large city, and probably seventy-five per cent of my inmates come from within a radius of ten or fifteen miles, and those children have run the gauntlet of specialists, and every specialist has promised that he would remove the mental defect, and so I fail to see where a board of specialists is to be of special value to our pupils. I have congratulated myself that we were able to live without. I think that the superintendent of an institution must be something more than a physician if he is to do the best work. I hold that my work is not to treat my children when they are sick, but to keep them well, and if my sick list is blank for a morning, I feel that I have done a very good day's work. It seems to me that the strictly medical work is subordinate to the hygienic feature.

Dr. Carson: There is a disposition in England, and occasionally here, which looks to the placing of backward children apart. While that might satisfy parents to a certain extent, the question arises whether it would not operate to exclude a great many from the institutions who ought to be sent there. Instead of being sent there, they might be sent to the schools, and attempts made to provide for them in that way. If that system is encouraged to a great extent, the result might be what would not be desired.

Dr. Brown has settled a question in my mind which has been debated for some years. Dr. Wilbur, it was claimed by New York, was the first to establish a school for the feeble-minded. Boston claimed that Dr. Howe was the first. It now seems that Dr. Wilbur antedated Dr. Howe from June to October.

Dr. Fernald: We have always conceded to Dr. Wilbur the honor of being the first one to begin the education of the feeble-minded, but we have also claimed that our institution was the first institution authorized by the state.

Dr. Carson: New York was the first state to propose it.

Dr. Fernald: Massachusetts was the first state to provide means for it.

Dr. Carson: While Massachusetts made an appropriation for the education of the imbecile, it did not make it for a special institution; that was left for New York to do. Dr. Howe's work was done in an institution for the blind.

Dr. Fernald: It was done in an experimental school for the feeble-minded.

Mr. Johnson: Is it still experimental?

Dr. Fernald: In some respects it is.

A paper on "Physical Anomalies of the Feeble-minded" was read by Dr. A. W. Wilmarth.

DISCUSSION.

Dr. Knight: What do you consider the smallness of head due to?

Dr. Wilmarth: I thought it was imperfectly developed; so much so that the heart weighed only two ounces. In relative proportions it was normal. He was about fifteen.

Dr. Knight: I received a patient some years ago' whose history was interesting. No backwardness was noticed in the child until the age of five. Gradually it failed, and was taken to specialists in Chicago and New York, but no diagnosis was made. So far as they were made they did not seem to fit the case. Finally the child was brought to me, and I must confess that I was puzzled, but after three or four months I was convinced that the child's condition must have been due to some heart complication, though I was unable to find any trouble with any of the valves of the heart. After death the father asked me as a favor if I would not make an autopsy of the

case. The child was with me four or five years, till it was about ten, and it was a history of retrogression from the first. It talked less and less, and finally did not talk at all. It was a gradual failure of the heart. I found the brain normal in every part and no trouble in any organ till I came to the heart, which was a scant two inches around in the largest circumference and two inches long. I was unable to tell whether the heart ever had developed. It was smaller than the heart of a child of four. It was a question whether the death was the result of an atrophied heart.

On motion, it was voted that the reading of Dr. Barr's paper should be postponed till evening.

Dr. Rogers: No one will think that any member of this Association lacks in interest in all matters pertaining to the treatment of the feeble-minded and the epileptic. But there are times when we can all turn from technical matters and remember that we are citizens of a common country.

Not long ago we were watching with great interest the difficulties developing between this country and Spain. There was in the heart of every true American, and there are very few of our citizens who are not true Americans whatever their antecedents, a deep determination that whatever the result of the war with Spain should be, it would be faithfully supported to the end, were it long or short. We remember how at last the war was declared, and we looked forward towards the first movement with dread, and yet with hope, and how finally our attention was called to the fact that one of our squadrons was at Hong Kong, and could be useful there. We had heard so much about the fighting capacity of the Spanish that we hoped our commander at Hong Kong would be able to reënforce his squadron with coal and make some successful move and not be destroyed so many thousands of miles from home. Then came the news that Commodore Dewey had met the Spaniards at Manila and destroyed every vessel, and we threw up our hats and put up our flags and said: "At last, we *know* we have a naval commander and a navy."

We have with us today Major Pangborn, who was the teacher of Dewey, and who has promised to tell us something about him.

Major Pangborn: I suppose that anything I might say would not have much place in reference to the feeble-minded. It is rather a strong-minded instance. I think you will agree with me that if there is any one man prominent to-day and who gives evidence of possessing a strong mind it is Rear Admiral George Dewey. I do not know in all our history where patriotism and executive ability have been more strikingly illustrated, or American valor and American judgment have been more conspicuous, than in the achievement of Admiral Dewey at Manila. What he did, all the world knows. The victory will probably never be paralleled again. It seems to me incredible, and if we did not know it was true we would not believe it, that with such a force as he had at his command he should entirely destroy the Spanish fleet, with a loss of 500 killed and 700 wounded, without the loss of a single American life. Yet knowing the original character of the principal actor as I do, I am not so much surprised. Like every Vermonter, I am exceedingly proud of my native state.

George Dewey I knew a great deal about very early in his life. It was my good fortune, and I think it was his good fortune too, that I was his teacher, and had something, perhaps, to do in shaping his future. He comes of exceedingly good stock. I have known the family since my boyhood, and there could be no better blood or heredity than his. The elements of success were born in him.

When I was a Junior in college I desired, as nearly all the students of the University of Vermont did, to get a winter school. The schoolmaster then was an autocrat. There was no board of education to supervise him, and tell him how to maintain discipline and how to instruct. He was master of his own motions. The only power that could interfere was the assemblage of pupils. They often seriously interfered with his plan of campaign.

It happened in Montpelier, under the shadow of the state house, that this state of things had developed. The State Street School had the largest number of pupils, children of the best families of the place, but its ill repute had gone abroad. There were eighty boys on the roll, and the primary school was in the same building. The school had fallen into the hands of the boys, and had passed beyond the hands of the master. My two predecessors had been summarily ejected by the boys, who had proposed to conduct things in their own way. I was anxious to earn all the money I could, and I conceived the idea of taking that school and making them pay for it. I went to the trustees and proposed to do it. The judge looked at me in surprise (I did not weigh but ninety pounds), and said, "You don't look big enough," and asked if I were in earnest. I said "Yes," and gave him my conditions,—that they were to pay me twice what they had paid the other teachers, an exceedingly large price for those days. I said I would take it for four months on those terms, and I wanted no advice and I would take no interference, and if the boys whipped me I would not call for any money. I began the school on those conditions. I knew that Dewey always led the boys. He was always at the front, but not noisily. He is not a man of much speech or bravado. His messages are models of terseness and brevity. "You told me what to do, and I have done it." That is the sort of boy he was. He would not allow any boy to whip him. Those were the days when there were apprentices, and every apprentice was allowed three months' schooling. So I had seven young men, quite grown, one a blacksmith, one a shoemaker, etc. The method of procedure was this: They would provoke a conflict between the teacher and the pupils, and if the teacher undertook to discipline the boys, the young men would come in and sustain the efforts of the boys, and the teacher would have all the odds against him. His was a forlorn hope. But I determined to govern that school, or the boys should kill me. I did not care anything about the incidentals.

Dewey was a handsome black-eyed boy, a fine scholar, always gentlemanly in his demeanor, but in it all there was a determination to do what he liked. School opened on Monday. For a week I got on without a wreck. I had my own method of dealing with children. I began by making friends with a majority of the girls, and that was some help. By Saturday I could see signs of rebellion. I never kept anything on my desk with which I could hurt any one in all my teaching, and I never laid hands on but two persons out of three thousand pupils. I never saw but those two cases where it was necessary. I do not believe it is necessary more than once in a million times.

There were signs of a disturbance; things were not right; things were coming to a crisis. I could not guess how nor when it would come, nor did I much care. On Monday afternoon George Dewey did not come in. I sent a boy to tell him to come in. The boy came back without him, but with the message, "He says you may go to h——." He said this before the school. I knew then that the battle was not far off. I dismissed the primary school, and after the whole school was dismissed, as I was going home, I saw Dewey in the steeple of the State House. He had a basket of something, and was pelting the children with the contents. I spoke to him quietly, and told him to come down. He refused with a profane reply.

That night I took counsel with no one, but I managed to get a rawhide. I cut off six or eight inches and took it to my room under my cloak and oiled it so that it would not hurt, and at ten o'clock I went to my schoolroom and laid it where it could not be seen. I also laid certain billets of fire wood, seemingly carelessly, within my reach.

The next morning I called Dewey to come before me and recited his sins to him, and told him he had to apologize to me immediately before the whole school for disobedience, or I should punish him. He refused with an oath. In a second the rawhide was all over him.

I do not think a boy was ever more completely subjected. He went into a heap on the floor. At the same moment the other big fellows sprang for me. The first one that reached me I hit with one of the wooden clubs, and he fell with a thud. I thought I had killed him, and at that moment I didn't care a button whether I had or not. But I threw water in his face. I shouted to the other boys to sit down, and they sat down at once. Then I sent out to an apothecary's, and got what was needful to dress the bruises, and at the close of school I went home with George, and told his father what I had done. He sent George to his room, and thanked me. It made a great stir in the town, of course. The bigger boy was very badly hurt, but he got out of bed in three weeks. They tried to get out a warrant for my arrest, and perhaps I ought to have been arrested, but the magistrate said that if anyone could manage that school they would take no notice of this, and I had a model school that winter, got my pay, and went back to college; and George was one of the very best boys I ever had, though he frequently remarked that he would whip me when he got big enough.

Two years later when I had been out of college some time, and was at the head of a large seminary where I was training boys, he came to me, and said that I was the first person who had ever taught him anything, and he wanted to know if I would fit him for college. I kept him for two years, till he entered college. At that time he was determined to get into the navy, but his father did not desire it, and he went to college under protest; but he went because he had learned to obey. He had been taught that authority must be respected. Ever since he has been an officer he has been noted, not for harsh discipline, but for his exacting discipline. He is a thorough martinet on shipboard. I have talked with those who have served under him. He is one of the most accomplished officers in the world. He exacts implicit obedience. Since his boyhood I have known nothing of him that was not to his credit.

To-day he is about as nearly the idol of the American people as any man can be.

Adjourned.

SECOND SESSION.

May 27, 1898.

The second session was called to order at 9 a. m. by the chair, and a paper by Dr. M. W. Barr on "Adenoma Sebaceum" was read by Dr. Carson, who said that he himself had seen one or two cases of this disease.

Dr. Wilmarth said that he had seen one case which he thought must have been the "butterfly disease," but he was not sure.

Dr. Murdoch said that one of the cases reported was under his care, but he had considered it a case of *acne ros*. It has been very persistent.

Dr. S. J. Fort was asked to read his paper on "The Future of the Educated Imbecile." Dr. Fort said that, after his subject was chosen, he found that at the meeting in Syracuse in 1887 Mrs. Brown had a paper on the same subject, but as it was such an important subject perhaps the members would be willing to hear a second paper on the same topic.

DISCUSSION.

Mrs. Williamson said that she would like to have some opinion about the legal status of the imbecile.

Mr. Johnson replied that there ought to be some lawyers among the members to answer such questions. He had found an interesting way of providing for an imbecile, namely, for a wealthy man who had an imbecile child to erect a cottage in connection with some training school, as had been done for the training school under Mr. Garrison, across the way. The rooms of the imbecile son were in this cottage, and thus he had a permanent home for life. We have, said Mr. John-

son, these border-line cases, that are doubtfully imbecile or feeble-minded. No one can draw a line, and say all on one side are feeble-minded and all on the other are strong-minded. We get cases of backward children. When they develop under training, I do not see what we can do. If they were once feeble-minded, they do not present any evidence of it now. It is a very serious matter that any young man or woman should be doomed to the kind and gentle imprisonment of our institutions, for we cannot deny that it is imprisonment to some extent. The children of that class feel themselves equal to those around them. They are the leaders in various ways. I do not know what we can do with them. When we are asked what evidence there is of feeble-mindedness, all we can say is that some ten or twelve years ago they were admitted as feeble-minded children. What can we do but let them go out into the world, if there is reasonable hope of self-direction and self-support? I think the general argument of Dr. Fort is one with which we shall all agree. It is not always what we would like to do, and what ought to be done, but what can we get done. In my own state we have some 6,000 idiots and imbeciles. If we attempted to care for them all in institutions, say, a thousand in an institution, that would be six institutions. It would never be done. There is one objection to large institutions, that of being upset by annual changes. Our experience in this Association has been, that, where there has been a large institution in conspicuously able hands those hands have been allowed to continue. The only way to be permanent is to be conspicuously successful.

I want to enter a protest against Dr. Fort's theory. We have taught the world that education is not acquiring the three R's. The education based on physiology, which we have learned from our patron saint, Seguin, has had more effect on educational methods for normal children than anything that has come from the outside. Education means the development of every faculty. We are all familiar with scores of instances of children who cannot be taught to read, but

who are active workers, and who can be brought, practically, to a condition of self-support under our care. I am reminded of an instance in our own institution. One of our teachers, a most devoted woman, in writing the monthly letter to a father told him of some progress the child was making. He replied that he was glad of her kindness, but he would far rather hear that Charley was learning to do some useful work than that he was learning the alphabet at the rate of one letter a month. That boy has learned a good deal since in an industrial way. It is certainly true that there is plenty of lack of information, and it is our business to give it about our own work. We are bound to take every opportunity to do so. I wish that Mr. Garrison would tell us about the action of his board of trustees, with reference to some educated imbeciles in his institution.

Dr. Wilmarth: These border-line cases sometimes give us considerable trouble and anxiety. One hint may have a bearing on this subject. Often those people who may seem to be all right, betray their mental weakness in correspondence. I remember an insane man whose actions appeared normal, and he had some thoughts about getting a writ of habeas corpus. One day he wrote a letter home, and it was intercepted. In it he said that everyone was compelled to wear a full beard, and that the place was full of spies, and other nonsense. We had one girl before a jury, and we did not know how to catch her until she wrote a letter. That was so utterly imbecile, so entirely different from her conduct, that I think it gave pretty good evidence that she ought not to be at large.

Dr. Carson: Dr. Fort seemed to think we ought to have some definition of idiocy, and I think that is what Mrs. Williamson wants. Of course, the conditions of imbecility and insanity are often confused among the laity, and I have been sometimes surprised to find that physicians do not make proper distinction. In a legal sense, there is no difference between imbecility and insanity, but in a medical sense there is a wide difference. Two conditions which sometimes resemble each

other are amentia and dementia; amentia being a condition of imbecility, or absence of intellect, and dementia the loss of intellect, which results from a disordered condition of the mind. In order to have insanity, we must have had an intellect, because insanity is a disordered condition of mind, or the result of such condition. We cannot have dementia without once having had mind. Amentia is a condition in which the imbecility or absence of intellect is the result of nondevelopment or disease in early life; or it may be congenital. I do not question that the feeble-minded person may become insane, but feeble-mindedness and insanity are quite wide apart. I have some doubt about an idiot becoming insane. We must have some evidence of insanity to pronounce a person insane.

Major Pangborn: It is desirable to have such a definition made, but how are you to solve the difficulty?

Dr. Carson: That is a question which the lawyers have to turn over to the doctors to decide.

Dr. Rogers: There is a local distinction in Minnesota that is practical and simple. A child who is not able to follow the methods of the common schools is feeble-minded, if it is from any lack of mental power. That makes him eligible to the institution.

Dr. Fort: Does that refer to the general course?

Dr. Rogers: Yes, to the general course.

Dr. Fort: A boy may learn a good many things by rote, and not have the least faculty of doing anything with them. He is like a man who buys a chest of tools and calls himself a carpenter.

Dr. Murdoch: It seems to me that the Minnesota definition of feeble-minded would include insanity; inability to get on in the public schools.

Dr. Rogers: I will admit that fact; such cases do occur, but they are exceptions. This is not scientific, but it is practical for most commitment purposes. The children Dr. Mur-

doch speaks of would be sent to the institution for feeble-minded, probably.

Question: Do you have commitment?

Dr. Rogers: No.

Question: Does anyone have it?

Dr. Fernald: We do in Massachusetts. The young improvable cases are received on nomination of the governor, but the adults of both classes, and the low grade cases are committed by the probate judge, the same as the insane. The probate judge will not accept the term idiot and imbecile; they have to be certified as insane. That is done to meet the law.

Mr. Johnson: I suppose it is hard for the citizens of that state to think of anyone there as imbecile.

Dr. Murdoch: We require the adult imbecile to be pronounced insane by two physicians, who must have been practitioners five years. All the adults committed to our institution come under the supervision of the committee of lunacy of the State Board of Charities of our state.

Adjourned at 10 a. m. to visit the institution under the charge of Mr. Garrison, the New Jersey Training School for Feeble-Minded Children.

THIRD SESSION.

Friday Afternoon, May 27.

The third session was called to order by the President at three o'clock, Friday afternoon. The Committee on Organization reported the following officers for the ensuing year:

Dr. Mary Dunlap, President; Mr. Alex. Johnson, Vice President; Dr. A. C. Rogers, Secretary and Treasurer; Mrs. Isabel C. Barrows, Official Reporter.

The report was adopted, and the officers were unanimously elected.

The Committee on Time and Place reported through the chairman, Dr. Fernald, that it was thought best to have the next meeting at some central point, either New York or Chi-

cago, the time to be left to the Executive Committee. On motion, the report was adopted.

Dr. Carson reported for the Committee on the Journal the following names: Editor-in-Chief, Dr. A. C. Rogers. Associates, Drs. Fernald, Powell, Wilmarth, Barr and Mr. Johnson. On motion, the report was adopted.

Dr. Rogers: While we are waiting for the committee to consider such other business as should come before us, my mind reverts to the memory of that beloved man whom Death has taken from us since last we met, Dr. Stewart. An excellent sketch of his life has already appeared in the Journal, and it has been a disappointment to me, as it has been to the others who were acquainted with him, that circumstances have prevented the older members who were associated so much longer with him from presenting, as it was their desire to do, a tribute to his memory at this meeting. Dr. Doren, in particular, had evinced a wish to visit Farmdale upon a mission of this kind, but was reluctantly compelled to abandon it. Nothing we can say can add any laurels to his brow or any luster to his name. His life has been an open book, whose every page has teemed with lessons worthy of observance. His presence was always a source of social delight, his personal example always worthy, his professional skill and zeal always of the highest order, and now that he has gone to the Better Land, his memory will always be an inspiration.

Dr. Carson: In gathering together at these annual meetings as we do, acquaintances are made and friendships formed which, with the passing years, become in their nature cordial and tender, strengthening the bonds of good-will and sympathy among us and causing us to feel genuine grief and sadness when, as on the present occasion, a familiar face is missed, a hand we loved to grasp is not extended, and an accustomed voice of greeting is not heard.

Since our assembly at Orillia last year, one good, true friend and brother, Dr. John Q. A. Stewart of Kentucky, a leader in the training and education of the feeble-minded, has passed away. We miss his face and presence, and as we pause for a moment in our proceedings to think, those of us who knew him, how large and keen our friendship for him had grown, we realize how truly his kind heart, his genial nature, his sterling character had endeared him to us, making our feeling for him more than that of mere friendly attachment, and commanding our deepest respect, esteem and love. We are glad that we have known him; we are the better for his having lived and come among us; and as his noble life influenced us to be true and zealous in our work and in everything worth doing, as he was, so the memory of that life remains to us a beautiful and cherished inspiration.

Dr. Knight: I think it will be proper for this Association to take a vote on the report of the Committee on Time and Place as to which of the two places they will select for their next annual meeting, Chicago or New York. I therefore move that New York be our next meeting place.

Mr. Johnson moved to amend by substituting Chicago.

Dr. Dunlap said she would like to suggest that the meeting should be held in Washington.

Dr. Knight said that could not be considered, as it had not been presented by the committee whose report had been adopted.

Dr. Dunlap withdrew her suggestion. Dr. Carson seconded Mr. Johnson's amendment. The amendment was lost. The vote was then taken on the original motion, and it was voted that the next annual meeting should be held in New York.

The Treasurer's report was read, and on motion adopted.

TREASURER'S REPORT.

CASH DR.

Balance on hand (Journal of Psycho-Asthenics, Vol. 2, No. 1, page 46)	\$35.01
To cash—Dues	135.50
To cash—Journals, proceedings and advertising.....	141.13

	\$311.64

CASH CR.

By printing	\$181.35
By engraving	4.25
By stenographic reports.....	19.00
By index Medicus.....	12.50
By postage, express, etc.....	5.96

	\$223.06
Balance on hand.....	88.58

	\$311.64

Vouchers filed for all expenditures.

Dr. Rogers proposed that there should be an assessment of five dollars per member. Dr. Knight offered the suggestion as a motion. Voted.

Dr. Fernald: In relation to our meeting next year I think it will be well to adopt a little different plan in regard to the work. I would suggest this: Our work is divided into several pretty well differentiated lines,—the study of causation, symptoms, classification, treatment and training. A few heads would cover the work. It would seem to me a good idea at this session to decide upon the titles of several papers for next year, and that different members of the Association be assigned to present to us the facts up to date in regard to the pathology, classification and etiology of idiocy. The rest of us would know that these subjects were to be brought up, and we should be on the lookout for facts bearing on them, and when those

papers were read, the paper and the discussion would bring out many facts of value that are now lost. For instance, take the question of the Mongolian idiot. Suppose that was the topic for discussion; every one of us would have new and interesting facts to report in regard to our patients. We have too few clinical reports of cases. One good case well written up, which I think each one of us could do, would be of enormous value. That would result in our doing some definite work.

Dr. Wilmarth: That would not stop the presentation of other papers?

Dr. Fernald: Not at all.

Dr. Fort: That is a valuable suggestion. If there were contributions in regard to the general medical view of imbecility, the surgical view, the pathological and one from the training school side that would give us four sections.

Dr. Wilmarth moved that the President request four persons to take up subjects for discussion for the coming year.

Dr. Fort thought it better to make the subjects adjustable, so that they may be changed another year, if it is wished.

Mr. Johnson thought four committees, each consisting of one person, with lively discussions, would be a good thing.

Dr. Carson thought it good work for the younger men. At the meeting in Grand Rapids he said that none of the committees appointed to report, reported.

Dr. Wilmarth's motion was seconded by Dr. Fort. Voted.

Dr. Fort: Is it customary for the Executive Committee to take charge of such a meeting as will be held in New York next year?

Dr. Rogers: There has never been any definite plan. We have generally met at institutions. The Secretary has corresponded with the local persons, and there has been an understanding between them. There should be two or three persons who have an understanding about such a meeting.

Dr. Fort: I move that a committee of three be appointed to secure hotel accommodations and railroad rates, if possible, for our next meeting in New York.

Dr. Wilmarth: How much preparation is needed?

Dr. Rogers: Dr. Dunlap is the next President, and I presume will look after details.

Dr. Dunlap: To be President of a national association is an honor, indeed, and I assure you I appreciate it fully. I do not know how I can carry it except with the help of all of you. Anything that I can do to make the next meeting a success, I shall gladly do, and I am sure Dr. Knight, Mrs. Williamson and Dr. Carson will assist me. I wish to assure you that the Association is always welcome to meet in Vineland.

The following persons were appointed by the chair a committee to make proper arrangements for the New York meeting: Dr. Knight, Dr. Carson and Dr. Dunlap.

Dr. Knight: I hope the Association will take some active step in regard to doing more valuable work each year. I am heartily in favor of that idea. I think we should select some one subject on which will be presented a carefully prepared paper, and that all of the members will know beforehand what the subject will be, and will come prepared to fully discuss it, and present whatever facts bearing on it may come to their knowledge during the year. After a series of years, such facts could be collated, and some valuable results might be secured. Why can't we have a committee on this which shall report?

Dr. Polglase: I am heartily in favor of this, if it can be arranged. Perhaps there might be two sections, if one does not cover the ground. I hope a committee will be appointed to consider subjects and report.

Dr. Murdoch: I am heartily in favor of bringing the institution into touch with scientific work, that we may learn something at these meetings which will be of benefit to us as leaders in the line of work that we conduct. I know that all the members appreciate that we have had a most delightful time, but I think the scientific part of the meeting could be greatly increased.

A committee consisting of Drs. Fernald, Wilmarth, Knight and Fort was appointed by the chair. They withdrew for

consultation, and a paper was read by Dr. Rogers, on "Locating Needles by the X-Ray," with photographs. (See p. 140, Vol. II., No. 4.)

A paper entitled, "Some Thoughts About Teaching the Idiot," by Mrs. Eldridge of Lapeer, Mich., was read by Dr. Polglase.

A paper entitled, "A Winter in Sloyd," by Miss Lucile Gilman of Faribault, Minn., was read by title.

Mr. Johnson asked to have Mr. Garrison, superintendent of the New Jersey Home for Feeble-Minded Children, invited to speak.

Mr. Garrison was invited to make an address on his work.

Mr. Garrison: My own interest in this work and my relation to it have their roots in the philosophy of the whole question of the treatment, education and training and general care of the imbecile. I would be glad to spend an hour in discussing the question of self-support of the imbecile and feeble-minded alone. All that I feel able to do to-day is to read, if you wish, some resolutions passed by our joint board yesterday. Personally it seems to me that we do not accomplish much in a desultory way. There must be time given, and research and a thorough understanding of the principles that underlie the work which is being done, and a thorough understanding of the methods used in the promulgation of those principles. Unless there is ample time for a careful differentiation, we cannot feel that the ultimate result is scientific or highly valuable.

Our board of lady visitors, consisting of thirteen members and our board of directors, also of thirteen members, of whom eleven ladies and seven directors were present in a joint meeting, passed these resolutions which I will read to you:

RESOLUTIONS PASSED BY THE BOARDS OF DIRECTORS AND LADY VISITORS (EIGHTEEN PRESENT) OF THE NEW JERSEY TRAINING SCHOOL FOR FEEBLE-MINDED CHILDREN, MAY 26, 1898.

WHEREAS, It appears that a number of our boys and girls, after many years of faithful training, have reached a stage of development

which indicates their ability hereafter to earn their own living, if given a chance under proper supervision; therefore,

Resolved (1), That we select the following ten children—seven boys and three girls—one for each year in our history), who, at the expiration of their warrants in October, shall thereafter be given by the school an opportunity to earn their living under its supervision. (Here appeared the names of the children.) The principal is hereby authorized to pay these children, beginning Nov. 1, 1898, a reasonable sum monthly for their services, give them opportunities, under careful guardianship, to earn this compensation, and require them to purchase their clothes, pay for their board and all other necessary expenses. The principal will also require the children to continue subordinate to the authority of the school in every particular.

(2) That we adopt this plan because it seems to us the most rational and sincere solution of all the difficulties involved, and is the best way to encourage that practical, self-respecting manhood and womanhood we have sought to establish.

(3) While we recognize that these children will always be constitutionally so deficient in will power and judgment that they should never marry, and should never be left to battle alone against the competitions and rivalries of society, nevertheless we find in very many of them a most happy response to wise methods of education and training, which should be, for their own sake, and also the better education of society concerning them, frankly met and practically provided for in a plain and tangible way.

(4) Since we believe, as a result of observations made in our school, that a very large percentage of these dependents can be made more or less self-sustaining under practical conditions, therefore we will use our utmost endeavors to call public attention to this plan, and secure in every possible way those funds requisite to build and equip shops, and to make all other necessary future provision to furnish industrial opportunities to every deficient child we may be able to lead up to self-support under direction.

Dr. Rogers: What would be the result if any child failed to comply with the requirements?

Mr. Garrison: There is no compulsion necessary.

Dr. Knight: In Mr. Garrison's plan, which I think is a good one, does he think there will be any trouble in retaining them as long as he wishes to keep them?

Mr. Garrison: I think it will be a great deal easier to retain them than before.

Dr. Knight: I think the experience of others has been that, after two or three years of wages, they get very independent. My point was, that, if you have no law whereby you could retain them in the institution on your pay roll, can't they take their wages and freely go out of the front gate when they take a notion to? Do you anticipate any trouble in that direction?

Mr. Garrison: I believe that those boys and girls are held to the institution by hooks of steel, and they are far less likely to go away, because they have been taught to think and feel aright. They are glad to think they can earn their own living. One boy there can earn his living in a tailor shop who in New York would be a tramp. When there is not work in the tailor shop, he can earn his living on the farm. I would give them variety to make them contented. A child wants a new toy every day. These children must have variety in their occupation, for they will be children all their lives. In the manner of training, we believe that we are right when we follow the lines that have been followed by fathers and mothers in all the centuries past. It is no disgrace to a child to say that it needs supervision. We have had ten men working on our railroad, and it has been the hardest thing to have things done right even with supervision. These children will be paid according to their ability, and they are to pay a dollar and a half a week for their board. We have had this thing going on for years so far as the training is concerned. We have had a store and pay day for years. They have handled money many times, and bought things or put their money away. I have taught them that they must lay something by for a rainy day, and a good many appreciate it—that they must pay for medical attention and nursing, if they are sick. That is not all. I have had children come to me and ask me to put five cents away for them to lay them away in the ground. It all depends on the system of education, and the practical application of the principles underlying the education. It is a relative question everywhere, and it is the same in one state as in another.

Dr. Rogers: This is a practical question with us: what to do with our boys? We have had about twenty boys under pay for five or six years. We have boys that buy their own clothing. I have one boy who has been on the pay roll four years, and one who has been on two or three. We pay one twenty dollars a month, and the other but four. They are strictly under the supervision of the institution. There is no action of the board of trustees. One boy is a teamster, and the other assistant fireman and engineer, and very capable. The latter was a boy who became very anxious to see what he could do in life for himself, and it has been my policy when the boys became anxious to try their own experience in life to let them see what they could do, keeping a careful oversight of them. This boy was gone about eighteen months, and during that time he earned very good wages most of the time, but he discovered that he was an inferior workman wherever he was, and he became very sensitive. He was quick to notice that he wasn't a leader in any sense. He came back and wanted to know if I hadn't something for him to do, and I gave him work, and he has been employed on his own responsibility. When he went away there was a small indebtedness, perhaps thirty or forty dollars on account of clothing, that had never been paid. When he came back, he voluntarily paid for those clothes out of his first earnings. Another boy, who is a teamster and drives the clothes wagon, was anxious to go out and try his success in life. He had a sister in the institution who encouraged him in his discontent, and his father (unworthy the name of father) also encouraged him. I paid him about three dollars a month for a year or more, and out of that he would save a little and send to his father, who was being helped by the county, and was very unworthy. The father was determined that the boy should come home and get employment and support him. His father wrote to the boy that he had a place for him. He had made an arrangement with a physician for his son to serve as office boy, and had not explained things to the physician. I did, and I told him I

hoped he would give the boy a good trial; that he was faithful so far as he understood, and could take care of his horse, but would not have much tact with his office patients. I took him to the place, and as I was picking up my hat to come away, the boy begged to go back with me, and said he didn't want to live there. He had been wanting to go for months. I consented to take him home. The next day we organized this little trip for him around the institution with a pony and cart. We pay him four dollars a month, and he pays for considerable of his clothing out of that. He is very faithful. Most of them receive from fifty cents to three dollars and a half a month. The clothing is supplied from merchant stock. For a number of years we have had a savings account, and we find it more satisfactory to put the money on our own books, and have a system of checks for drawing it out as required, than to allow it to be held by the children. After it amounts to ten dollars and has been on deposit three months, it draws interest. It is placed in one of the reliable savings banks, and now amounts to about five hundred dollars. The interest received from the bank is pro-rated among the children depositors. The children are very enthusiastic about it. We are having some other boys reach the age when they should be self-supporting, and it is a trying question what shall be done with them. They are not capable of taking hold of any regular places that we have now, yet I feel that we ought to make places, so as to retain them on the same plan indicated by Mr. Garrison.

Mr. Garrison: I am very glad to hear this report, for it is decidedly bracing. We have not in our school a single child that should ever go out and earn its own living. We try to inspire them all with an ambition not to be dependent on the state. If we are to make them independent, we must make places where they can be independent. We have a boy seventeen years of age who, three years ago, was taken from us and kept away nine months. He was put in three different places, one after another. Yet that boy can earn his own living under

constant, firm supervision, which could not be given him out in the world. He recognized his deficiency, but he is ambitious, and we are ambitious to bring out the best that is in him and to show him his own earning power. We owe it to the tax payers of the state to prove that in our work we can show practical results that shall reduce the per capita cost in these institutions. The average per capita cost that we receive is about \$210, without clothing, and with clothing from \$240 to \$245. The government is gradually decreasing that. There are some for whom we receive less than a hundred dollars a year. We are able to absorb the labor of a large number in the kitchen, tailor shop, dressmaking department, and in the shoeshop. One of the children has shown ability for teaching, and I see no objection to employing such as assistant teachers. When I was in California, Dr. Osborne got up an entertainment for me, and after it was through he asked who got up the entertainment. I said I supposed the lady at the piano did. I said I had been questioning whether she was not one of his children at one time. He said it was got up exclusively by her, and she is a full teacher there to-day.

Dr. Fort: Will you have any legal restraint over those ten boys after the first day of November?

Mr. Garrison: There is no legal restraint now. None of the children are committed to us. We have only moral restraint over the parents and over the children. We have had to use our moral power both over parents and children to hold them there at all, and we have a great deal more hope of retaining them in this than in any other way.

Mr. A. Johnson: We use moral power with the parents and physical with the children.

Dr. Rogers: I know several cases where we have to reverse that.

Mr. Johnson: I have gone out and taken a boy and forcibly brought him back. The boy is not committed; he is simply admitted. I think it is a very weak point. A boy that does

all sorts of mischief, who goes out and gives trouble to the neighbors, is a danger in the community if he is not brought back. I think the courts would sustain us, but we might be fined. It has to be done, all the same.

Dr. Rogers: It seems to me there ought to be some process in each state by means of which the administration of an institution, or some proper authority, the knowledge of the case being based on the knowledge which the institution possesses, can secure the permanent detention of any children requiring it. Voluntary admission is the correct principle, but when a parent insists on taking a quiet, inoffensive girl into very improper surroundings, and you cannot show the impropriety, the cruelty and the sin of an action like that, there should be some means by which you can get the custody and life control of that child. The ugly ones will make their way back, because the people will send them back. We should be able to retain those that need the protection and mothering of the institution. I believe it is a perfectly possible thing in the different states, if the matter were worked up, to have legislation that would allow the institution to obtain from the proper courts the right to retain those who need it.

Mr. Johnson: I wish that subject could be given to Dr. Rogers to work up for next year, of having the boys and girls passed upon by a proper committee appointed by the governor. We should then have the legal custody of those who need to go out.

Dr. Fort: I wish to call the attention of the Association to a curious conglomeration of facts found in one family in the last year. The oldest child at the time I saw them was fourteen, a girl of marked microcephalic head. The mother said that three months prior to her birth she was awfully frightened. The next child was eleven, a boy, who had a perfectly normal head, and seemed to be normal in mental capacity. The next was about nine and a half, a girl also, of microcephalic type. The fourth was a boy with normal head. The fifth was another

girl, also microcephalic. The oldest girl was a very low type mentally. She had never been able to learn anything at all in school. Her capacity amounted to being able to set the table, and clear it off, and possibly wash dishes without breaking very many. The others have been for some time under the care of our co-worker, Miss Gundry, and I think they have improved considerably. I call attention to the fact that all the girls had mental defects and the boys had none. The father is a man who has been earning about twenty-five hundred dollars a year as book-keeper for one of the largest manufacturers. He appeared to be rather intelligent, so far as general scope of intelligence went, but very quiet and with little to say, and slow moving in his intellectual operations, a man of very fine physique, and the boys would have been picked out as this man's sons. The mother was very quick speaking, and inclined to be hysterical. She could not sit long in her chair, and kept moving from one place to another. She seemed rather proud of her collection of Aztecs, and called attention to the fact that they were all brunettes, as she was; and they did resemble her.

Mr. Johnson: One of our recent admissions was an imbecile with epileptic parentage. Her grandmother has been in our insane hospital for twenty years. Two sons are in the hospital for the insane; one son has committed murder. The grandfather's brother is in the insane hospital. Two sons committed suicide and one committed murder. The child is the only one of her family. Of course, we hope she will not have any progeny. The papers of the child with the etiology did not contain one word of this. I found out all these facts by the merest accident. I happened to be talking with Dr. Smith, and he was telling me about this remarkable family, and I found, by correspondence, that I had one of the same family. According to our records all her relatives were first class, and died of old age, and sworn to by the physician that this was correct.

Dr. Fernald and his committee having returned, he reported the following subjects, and persons to consider them: "The Self-Supporting Imbecile," Alex. Johnson; "Paralytic Idiocy," Dr. W. E. Fernald; "Cases of Idiocy Without Physical Defects," Dr. S. J. Fort; "The Use of Nature Studies in Sense Training," E. R. Johnstone; "The Study of the Blood in Idiocy," Dr. A. W. Wilmarth; "Circulatory Anomalies in Idiocy," Dr. W. A. Polglase; "The Thyroid Treatment of Cretinism," Dr. J. M. Murdoch; "Legal Control of the Feeble-Minded," Dr. A. C. Rogers.

On motion of Dr. Knight, the report of the committee was adopted.

On motion, it was voted that the Secretary should send this list to all the members of the Association.

On motion of Mr. Johnson, a vote of thanks was passed to Dr. Dunlap and the trustees of the New Jersey State Institute for Feeble-Minded Women for the delightful hospitality extended to the Association. The motion was passed unanimously, by a rising vote. Dr. Dunlap replied in a few words, thanking the Association for coming to New Jersey.

Thanks were also expressed to Mr. Garrison, for the interesting morning in his institution.

Adjourned at 5:30 p. m., to meet in New York in 1899.

The Journal of Psycho-Asthenics.

VOL. III.

SEPTEMBER, 1898.

NO. 1.

A quarterly journal devoted to the education and care of the Feeble-Minded and the care and treatment of Epileptics. Published under the auspices of the Association of Officers of American Institutions for Feeble-Minded.

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EDITORIAL.

COMMODORE DEWEY AND HIS SCHOOL DAYS' PUNISHMENT.

The unusual interest in all things naval this year will be sufficient excuse for the publication in the minutes of Major Pangborn's experience in punishing Dewey, as told by request at the Vineland meeting of the Association.

THE TEACHER'S OPPORTUNITIES.

In these days of large institutions for the feeble-minded, when the superintendent must devote his whole energy to the general rather than the specific duties of management, and to perfecting and maintaining the organization rather than

executing its details, he has little opportunity to study systematically the children under his care. He must teach others how to train children, rather than train them himself, and while he must, if efficient and successful, know that the right kind of work and training is being done everywhere, he cannot, from the nature of things, enter into the life of the individual child like the teacher and the attendant who alone know thoroughly the daily life, habits and characteristics of their pupils. Their combined knowledge, if recorded, systematized and classified, and thus made available for reference and future application, would always be valuable. If special efforts were made to intelligently and systematically study the pupils with reference to such data, the result would be still more valuable.

In the various institutions, public and private, for the feeble-minded, there are many valuable teachers employed,—many who not only have the teaching faculty developed to a remarkable degree, but who also possess a real missionary spirit and a love for their work that raises them above the mere mercenary desire for the wages involved. These teachers should be collecting the data that every department of education is anxiously desiring, and which is actually required to-day to enable the existing institutions to improve their systems of training. The various teachers are industriously laboring to find out the things which other teachers have already discovered by the same slow process.

There should be some plan for the comparison of views and experiences among our teachers in every institution, and then the best net results of these comparisons should become the property of the teachers in other schools of like character. The JOURNAL urges the organization of teachers' clubs and societies in each institution where they do not already exist, and the appointment of a corresponding secretary or reporter for each. It also solicits brief reports of such meetings, and synopses of papers presented, for the purpose of publishing as much as is of general interest.

NOTES AND ABSTRACTS.

THE QUESTION OF OPENING A DAY SCHOOL FOR THE FEEBLE-MINDED is being agitated at Milwaukee, Wis. Mrs. Gertrude M. Walker, who is much interested in the improvement and training of backward and feeble-minded children, is one of the leaders of the movement.

THE SCHOOL FOR FEEBLE-MINDED AT WAVERLY, MASS., suffered considerable loss through lightning on the 17th of August, the barn being struck and entirely destroyed, together with all the farm machinery. Most of the stock, however, was saved.

DR. AND MRS. BROWN'S PRIVATE INSTITUTION FOR FEEBLE-MINDED YOUTH, BARRE, MASS., celebrated its fiftieth anniversary June 29, 1898.

A CONFERENCE OF GERMAN SCHOOLS FOR FEEBLE-MINDED AT BRESLAU from the 6th to the 9th of September. Some of the papers read and subjects discussed are as follows: "How Can We Teach the Speechless Feeble-Minded to Speak?" "Concerning Tic in the Feeble-Minded, and Its Treatment by Gymnastic Exercises;" "The Relation of the Auxiliary School to the Public School;" "Care of the Feeble-Minded in the Province of Silesia;" "Definition of 'Weakly Endowed' and 'Feeble-Minded.'"

A KIND WORD FROM DR. IRELAND.

"Mansbush House, Polton, Midlothian, Sept. 16, 1898.

"I thank you for so kindly sending the JOURNAL OF PSYCHO-ASTHENICS for June, which I have just received. It is full of interesting matter, and will, I hope, run a long and useful course. With best wishes, I am,

"Yours truly,

(Signed.) "WILLIAM W. IRELAND."

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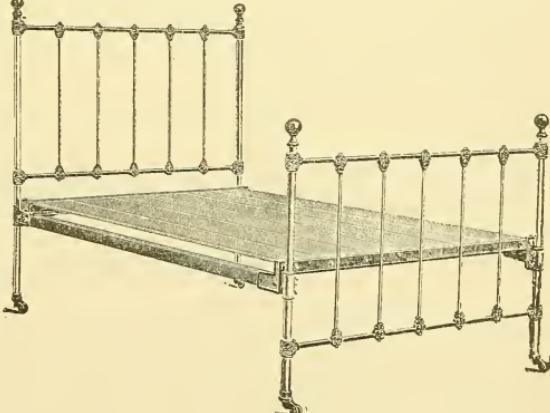
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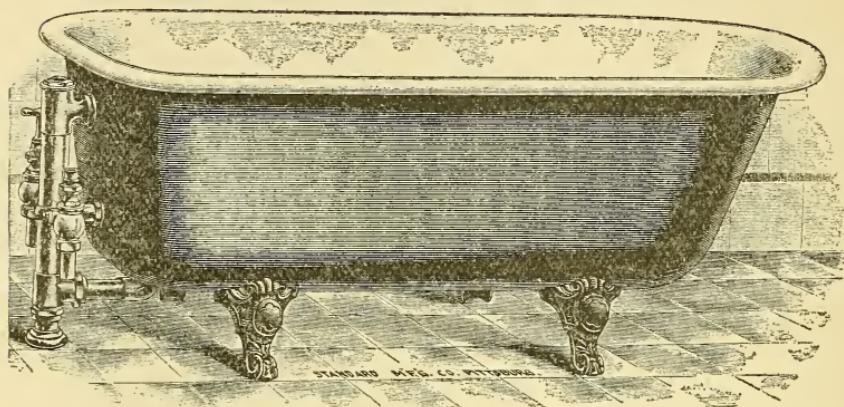


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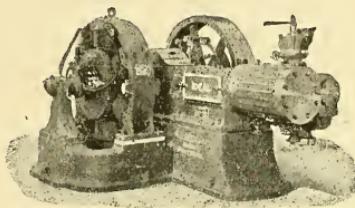
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Devoted to the

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Vol. III.

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No. 2.

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Fig. 1.—Curves indicating the percentage monthly birth-rates, during five consecutive years, ending with 1898, in New York city.

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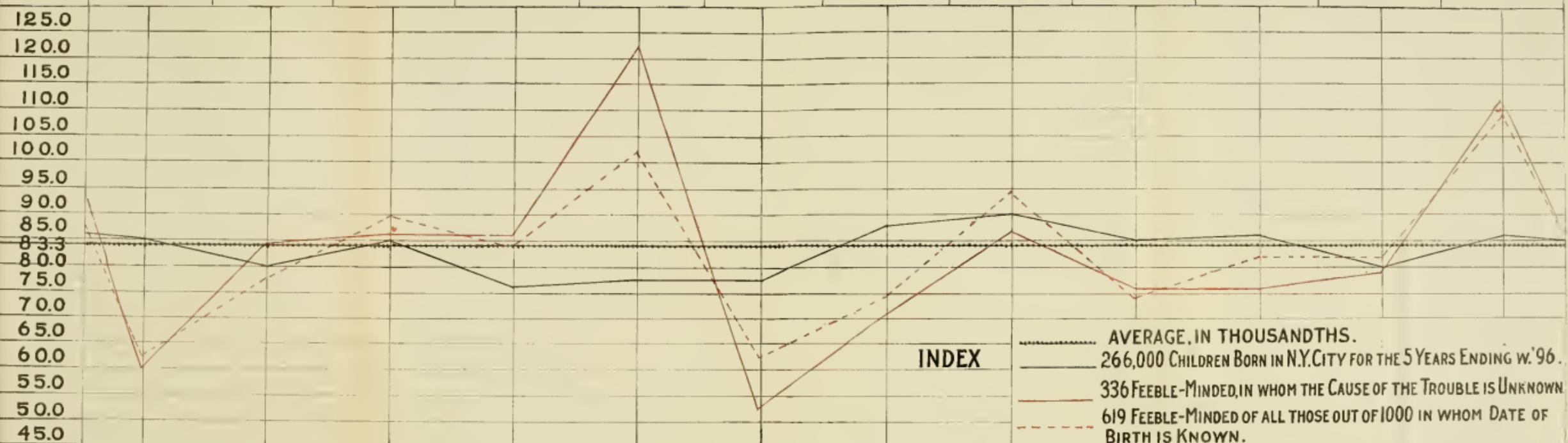


Fig. 2.—Curves indicating the differences of monthly percentages of
 (1) The total of births in New York city during the five years, ending with 1896 (256,966 birth records);
 (2) 619 birth-records of the feeble-minded; and
 (3) 336 birth-records of those feeble minded, who were so from birth, and in whom the cause of the mental defect is in all probability hereditary.

Journal of Psycho-Asthenics.

VOL. III.

DECEMBER, 1898.

NO. 2.

ANTHROPOLOGICAL STUDIES.¹

BY DR. ALES. HRDLICKA.

The work alluded to in the title consisted of the following series of inquiries and examinations:

A.

Case-book records¹ on 1,000 inmates of the Syracuse Institution, supplemented by 500 records, relating to the causes of the mental deficiency, from the Newark State Custodial Asylum for Feeble-minded Women. The above records cover the following points:

I.—FAMILY CONDITIONS.

- (a) Date of birth (month, season).
- (b) Birthplace of the patient and of parents.
- (c) A mature or a premature condition of the child at birth.
- (d) Number of children in the family, and the numerical place of the patient among them.

II.—ETIOLOGICAL FACTORS.

Age at which the mental defect appeared in the children.

- (a) Deceased or unknown-of parents at the date of admission of the child to the institution for feeble-minded.
- (b) Epilepsy in parents.
- (c) Causes of death of deceased parents.
- (d) The stated causes of the mental defect of the patient.

¹Conducted at the State Institution for Feeble-Minded Children, Syracuse, N. Y.

III.—CERTAIN CONDITIONS OF PATIENTS ON AND AFTER ADMISSION.

- (a) Epilepsy.
- (b) Paralyses.
- (c) Speech defects.

B.

I.—REFLEXES.

- (a) Iridial (light accommodation).
- (b) Patellar.
- (c) Tickling (soles, axillae).

II.—PHYSICAL EXAMINATION OF THE STRUCTURES IN THE MOUTH.

- (a) Dentition.
- (b) Denture.
- (c) Alveolar arches.
- (d) Hard palate.
- (e) Uvula.

These inquiries and examinations are a part of the first group of anthropological investigations, undertaken, under the auspices of the Pathological Institute of the New York State Hospitals, on a series of normal and several series of various abnormal individuals (mainly the insane, the epileptics, the feeble-minded and the idiots).¹

The separate publication of this part of the general report on the entire first group of examinations is thought advisable for the following reasons: (1) The work in the insane asylums is somewhat belated, on account of its magnitude, and its results cannot appear in press for several months yet. (2) The nature of the subjects of this series differs considerably from that of the subjects of the other series included in the investigations. The feeble-minded, with the idiots, are subjects with more or less *primary* and *persistent deficiencies* of the higher brain powers, while the insane are patients in whom the men-

tal powers are *disturbed*, mostly but *temporarily*, and those who have suffered *secondary* mental *deficiencies*; and the case is similar with the epileptics, only that, in these, *secondary* deficiencies of the mental powers are yet far more common than they are in the insane. In addition, many of the feeble-minded examined were children, whereas almost all the subjects of the other abnormal series examined were adults. (3) This part of the work published alone will, it is hoped, stimulate more the interest in the investigations on the important classes of the feeble-minded and the idiotic, and indirectly on young subjects in general, than it would were it published together with the investigations on other abnormal classes of individuals. (4.) Finally, this paper will show to a certain extent the nature of the final report on the entire first group of anthropological examinations.

Before proceeding further, I beg to express my indebtedness to the superintendent of the Syracuse State Institution for Feeble-Minded Children, namely, Dr. J. C. Carson. Whatever may be the success of this work, it will be largely due to the good will and the aid of this gentleman, and I am also under obligation to the authorities of the Newark State Custodial Asylum for Feeble-Minded Women, for the records to which I have already referred.

The examinations at Syracuse were conducted wholly by myself, nevertheless I wish to express my acknowledgment for much valuable aid given me by Dr. Julia St. J. Wygant, the resident assistant physician, and to Mr. Clarence A. Perry, a student, of Cornell University.

It is not thought advisable, and indeed it would not be feasible, to make any divisions in the data on the basis of diagnosis, as the data concerns simply various grades of one and the same condition. There is, in fact, a great difference between certain of the inmates of the Syracuse institution and some of the inmates of, for instance, the Rome Custodial Asylum for the

Idiotic; but a dividing line, before which we should find only the feeble-minded and beyond which only the idiot, does not exist. The two conditions blend imperceptibly, gradually together. There are inmates at the Rome asylum for idiots who can hardly be said to be more than feeble-minded, and there are others at the Syracuse institution for feeble-minded whom it is impossible to term otherwise than idiots. The various terms by which different grades of the mentally defective are designated are largely but relative, or even artificial, and do not amount to much more, except from an economical standpoint of view, than would similar divisions amount when applied to any other physical or mental disorder which manifests itself with various gravity in different individuals.

We will proceed, now, to the exposition and analysis of the records obtained at the Syracuse State Institution for Feeble-Minded Children.

A.

I.—FAMILY CONDITIONS.

(a) Date of birth according to months or seasons.

This item touches upon a very large, complex, and unsettled problem, which is the influence of meteorological and sociological conditions upon human reproduction. We will not enter here into any detailed dissertation on this subject; nevertheless, it is necessary to briefly state a few facts in order that the very inquiry could be understood by the reader. It is generally known that, in by far the greater majority of mammals, not to speak of any lower animals, the sexual functions, and, in consequence, the births, are much more prevalent, if not restricted to, at certain seasons of the year, than at others. There is a number of known, and undoubtedly some as yet unknown, causes for this, causes into which we need not inquire here.

The question which presents itself to the anthropologist is, has man entirely liberated himself from all these influences which affect reproduction in the lower animals; or is he still subject, and if so to what degree, and under what circumstances mostly so, to any of these influences? When we come to consider the same problem, not with the whole of humanity, or a whole community, but a special well-defined, abnormal class of any kind of humanity in general, or of any large community, the above question is augmented by the additional consideration, what influence, if any, does the abnormality of the class of individuals in question exercise upon the periodicity of reproductiveness. In the case of the feeble-minded, the question resolves itself thus: We know that the feeble-minded are born prevalently out of abnormal parents of various sorts. Has the condition of these parents made any marked impression upon whatever may be the state of fluctuation in the birth rates at the various seasons or months in the general population?

In order to be able to answer the foregoing question two conditions are necessary: First, sufficient data on the births among the general population; and, second, sufficient number of birth records of the feeble-minded themselves. But both these conditions are, in this case, very difficult of realization. Our investigations on the feeble-minded have been carried on only in New York State, and hence we are restricted to this state with all the data required to satisfy the above two conditions.

We have no thorough statistics of birth records of the general population from the whole state, but I have been kindly permitted to utilize the data of New York City, collected by the New York Board of Health, and I can present these, as the second best, to establish the curves of the birth rates of the general population. As to the feeble-minded, the difficulty is greater. We find practically no birth records of the patients

on Randall's Island and in Rome, and but few at the Newark asylum, so that we are restricted to the records of the Syracuse institution alone, and the number of these is hardly sufficient.

I will present the material at my disposal for what it may be worth. In the first following figure I have drawn the curves of the percentages of the births in New York City; and the second figure represents an average curve of five years on the general New York City population, and two curves of birth percentages obtained on the Syracuse imbeciles. In one of these last mentioned curves all the feeble-minded are represented on whom we have fairly reliable statements of birth dates; but, as these include a certain number of children who may have been born of normal parents, and who became feeble-minded as a result of some disease or accident, I have drawn another curve, which represents only those patients, whose mental defect is hereditary, or where the cause of the defect is not known, in most of which instances, the case is undoubtedly also hereditary.

There will be seen in the figures:

- (1) A steady curve of child-birth in New York City, with a well defined minima in February, April, May and June, and an equally decided maximum in August.
- (2) A widely different state of curve in the feeble-minded, with pronounced minima in January and in June, and equally pronounced maxima in May and December.
- (3) The elimination of these feeble-minded, in whom the cause of the defect was stated to have been other than a hereditary predisposition of some serious nature, does not materially affect the preceding curve, but accentuates it in all its prominent features.

As to the possible significations of the character and the difference of the three main curves, I would not like to enter into any discussion; our similar data on other abnormal classes, when ready, may perhaps elucidate the whole question.

(b) BIRTHPLACE OF THE PATIENTS AND OF THEIR PARENTS.

Out of 1,000 cases, in 241 the birthplace was doubtful. Out of the remaining 769, 720, or 93.6 per cent, were born in the United States, whilst 49 of the patients were foreign born. The distribution of the foreign born, according to countries, is as follows: Germany, 19; England, 7; Ireland, 5; Canada, 4; Russia, 4; Scotland, 2; New Zealand, Mexico, Poland, Hungary, Austria, Denmark, Norway and Sweden each 1.

The above record compared with the population of the State of New York in 1890, as taken by the eleventh census, appears as follows: There were in 1890 in this state 73.81 per cent of native-born and 26.19 per cent of foreign-born inhabitants. The percentage of the native-born feeble-minded is thus considerably higher than the same percentage among general population.

Out of the parents of the patients in 288 cases both the parents were native born, while in 369 cases the birth-place of one or both remained uncertain. In 234 cases both of the parents were foreign born. In 348 cases, again, the birth-place was doubtful.

Finally, in 91 cases, one of the parents was foreign born, with 386 cases doubtful. These proportions, compared with similar data obtained on the population of the State of New York, are as follows:

	White Population of the State of New York.	Feeble-Minded of the Syracuse State Institution.
Both parents native born.....	43%	46.9%
Both parents foreign born.....	31%	38.1%
One parent foreign born.....	...	14.8%

These last figures do not show any material differences, and this whole chapter demonstrates the fact that the relative proportions of the feeble-minded to the total population is not at

all, or but very slightly, affected by immigration. In reality, if we exclude the forty-nine cases of foreign born, feeble-minded, with their parents, we find a somewhat lower percentage of foreigners, with a somewhat higher percentage of native born, among the imbeciles than among the general population.

(c) BIRTH-TERM.

In 419 out of the 1,000 cases here considered, the term of birth was either not stated or the statement was deemed for some reason doubtful.

Out of 581 remaining feeble-minded, 554, or 95.3 per cent, were stated to have been born at nine months, or the full term, while 26, or nearly 4.5 per cent, were stated as born at less than nine months, and one is supposed to have been born at ten months.

Out of the premature-born children there were born at eight months, twelve; at seven and a half months, one; at seven months, eight; and simply stated at less than nine months, five. We have no statistics on the normal to which we could compare these results. The percentage of premature births, amounting to 4.5 per cent, is probably somewhat higher than we would find among ordinary population; nevertheless, this point cannot at present be decided.

(d) BIRTH-PERIOD OF THE FEEBLE-MINDED, WITH RELATION TO THE WHOLE NUMBER OF CHILDREN AND TO CHILD-SUCCESSION IN THE FAMILY.

In 283 cases out of the 1,000 feeble-minded the condition of the family as to the number of the children is doubtful. Out of the remaining 717, in fifty-nine cases, or 8.2 per cent, the patient was the only child of the family. In 210 cases, or 29.3 per cent, the patient was the first child; in 176 cases, he was the second child; in 215 cases, or 30 per cent, he was the

last child. In 375 cases there were more children in the family than one.

The above data are of a certain interest. The percentages of the only child, of the first child, and of the last child in the family are certainly higher than we can expect to find among the general population. This is true especially of the only and the first child. I would not attach much importance to the percentage of the last-born child for the following reason: All the records here considered were obtained at the admission of the pupils to the institution, and as a majority of the pupils at the time of their admission were but children, there is a strong possibility that, in not few cases at least, some children may have been born after the statements here considered were made. The significance of the very large percentage of the only child and the first child among the feeble-minded is quite obscure.

There are certain elements, especially of a physiological nature, which are more apt to accompany the first conception than any of the subsequent ones, and these elements must be given a due consideration. The not fully mature state of the mother may be an element of additional value in some cases. Injuries of the child at birth are also more frequent with the first child.*

II.—ETIOLOGY.

THE BEGINNING OF THE MENTAL WEAKNESS.

In 578 cases out of the 1,000 feeble-minded the mental defect is stated as having been observed in very early life. In a large proportion of these cases, the child, beyond a doubt,

*Note.—I owe to the superintendent, Dr. Carson, the interesting information, based upon his own observation, that, in the cases of children of the so-called Mongolian type, which comprises two or three per cent of total admissions, in about seventy-five per cent of the instances the pupil was the last child of the family. To present actual statistics, among twenty-nine cases of consecutive admissions of pupils with a pronounced Mongolian type, seventeen, or 58.6 per cent were the last child of the family; four, or fourteen per cent, were the next to the last; four, or fourteen per cent, were the first child; and only three, or ten per cent, were the intermediate children of the family.

was born an imbecile. In a certain percentage of cases, however, the defect may have been thus early acquired by injuries during delivery, and by infantile accidents or disorders. In 252 cases the beginning of mental weakness is not definitely stated.

CAUSES OF FEEBLE-MINDEDNESS.

It would be misleading to expect that the following data will give us an absolutely true index of the causes of the mental disorders of the inmates of the Syracuse institution. The data will comprise only such causes as relatives of the patients, or those who knew the patients, could appreciate and state at the moment of commission of the child to the institution. Hence we may be certain that a great many important indirect, and even direct, causes of the mental defect have not been stated. Nevertheless, the data of the Syracuse State Institution for Feeble-Minded Children, relating to the causes of their mental condition are unusually full and thorough for institution records, and the results of their careful analysis cannot be without considerable interest and importance.

In 554 cases out of the 1,000 there were either no data present or the statements which had been made were considered uncertain, and hence this number of cases is to be eliminated from the following considerations:

From the remaining 446 records, in at least 30 per cent of the cases, the causes given are of hereditary nature. In fact, in 95 cases heredity is directly stated as the cause of the mental defect of the child. In 18 out of these 95, or 4 per cent, out of the total 446 statements, the heredity is said to be "direct," which means, at least in the majority of the cases, so far as I could find, that one or both parents of the child were also feeble-minded. These data will receive more attention a little further in this report.

(a) Before we start to consider the stated causes of the patients' mental defects themselves, it will be well to introduce a few closely related data concerning the parents. First of all, as to the percentage of orphan children committed to the institution; in other words, as to the living or dead parents at the time of the admission of the patient.

Out of the 1,000 fathers, 345 were living, 154, or 30.8 per cent of those of whom a positive knowledge could be had were dead at the time of the admission of the child to the asylum, and in 556 cases out of the 1,000 the fate of the father was unknown. Out of 1,000 mothers, 362 were living; 52, or 12.5 per cent, of those whom a positive knowledge could be had, were dead; and the fate of 543 was unknown. Both parents of admitted child were known to be dead in 31 cases.

These proportions of orphan children are extremely high. They indicate a premature decease of one, and sometimes of both, of the parents. The whole phenomenon, together with the one of which we will speak next, implies a large series of more or less grave predispositions, which fall to the lot of those who eventually constitute the class of imbeciles.

The great percentages of cases of both the fathers and the mothers, of whose fate nothing is known to the relatives and to the authorities who assist in the formation of the certificate of admission, is of further importance, besides being very interesting sociologically. Where a person has disappeared, so that neither the authorities nor the relatives know his whereabouts, there can be but a few causes of such a disappearance. In probably the majority of the cases, the individual is dead, or entirely destitute.

In other cases important social reasons keep the person apart from those who knew him before, and these social causes are generally of a nature which reflects no credit on the individual's character. In only a few remaining cases will the causes of the disappearance of the person from those

who knew him be of an indifferent nature, that is, such as will not throw any immoral or other shadow on the individual.

(b) We will next turn our attention to those of the parents of the feeble-minded of the Syracuse State Institution, who were still living and known at the time of the commitment of the patient. The number of these, we have seen, was not large. The admission papers contain but a single question with reference to these parents, which is of importance in this connection, and that is, an inquiry after epilepsy. As a result of this inquiry, we find the statements that 13, or 3.8 per cent, of the living fathers, and 14, or 3.9 per cent, of the living mothers, have had, or still have, some sort of fits, or a genuine epilepsy. These proportions are, of course, very considerable, and they are certainly below the reality, for in many cases of the living parents we find no answer whatever to the inquiry about epilepsy.

(c) Concerning the dead parents, we are so fortunate as to find the death causes stated in 99 of the fathers and 95 of the mothers. These statements are very remarkable. They demonstrate that certain conditions leading to the death of an individual are very frequent among the parents of feeble-minded, far more so than among the general population. They demonstrate, further, that in the majority of the cases of the dead parents of the feeble-minded, the death cause has been of such a nature as to indicate that the father's or mother's constitution was deeply affected for a long time previous; in other words, that one or the other parent was of such a physical constitution as would be most liable to propagate hereditary defects of a serious nature to his or her offspring.

I find that the causes of death of these people can be conveniently arranged into three groups. The first group including causes closely related to the nervous system; the second group including constitutional and other diseases; and the

third group including infections and accidents. There are no great differences of percentage between these groups in the two sexes. To the causes of the first group are attributable 15, or 15.1 per cent, deaths in the male, and 12, or 12.6 per cent, in the female; to the causes of the second group 66, or 66.7 per cent, in the male, and 60, or 63.2 per cent, in the female; and to the causes of the third group, 18, or 18.2 per cent, in the male, and 23, or 24.2 per cent, in the female. In detail, the causes of death in the two sexes are as follows:

GROUP I.

	Male.	Female.
Suicide.....	3	1
Sudden death.....	1	0
Apoplexy	1	3
Cerebral-paralysis	2	1
Brain disease	1	0
Brain fever	0	1
Insanity	2	2
Prostration	1	1
Nervous disease	0	1
Sunstroke	1	0
Alcoholism	3	2

GROUP II.

	Male.	Female.
Consumption	20	32
Heart disease	11	5
Angina pect.....	1	1
Cardiac-dropsy	0	1
Dropsy	1	2
Bright's disease	4	1
Liver disease	1	0
Rheumatism	2	1

	Male.	Female.
Aneurism	0	1
Kidney disease	0	1
Lung trouble	0	1
Typhoid	7	3
Pneumonia	8	3
Peritonitis	2	5
Bowel disease	1	0
Yellow fever.....	2	0
Diphtheria	1	1
Ccarlet fever	0	1
Fever	0	1
Ulcer of stomach.....	1	0
Gall stones	0	1
Cancer	0	4
Senility	2	0
Rupture	1	0
Starvation	1	0

GROUP III.

	Male.	Female.
Killed	15	0
Drowned	2	0
Blood-poison	1	1
Peritonitis	0	2
Puerperium	0	18
Eclampsia	0	1
Ovarian operation	0	1

It is not necessary to comment very broadly on the above data; the fourteen per cent of death causes concerning directly the nervous system speak for themselves, and they are still a considerable underestimate of this category of death causes among the parents of the feeble-minded.

There are three or four items in the list which deserve a special notice. The most important of these is consumption.

It is quite well appreciated that tuberculosis plays a large part as a cause of death in the relatives of various abnormal classes of individuals; in other words, that it is an important factor in heterogenous heredity. I had an occasion, in 1896 to emphasize this point, in relation with the insane.* Nevertheless the great proportion of consumptive parents in the list just given is remarkable. According to the eleventh United States census, the percentage of deaths due to tuberculosis, among 380,954 adults above twenty-five years of age, who died during the six years preceding May 31, 1890, was 10.6 per cent in the male and 8.4 per cent in the female. Among the 194 parents of the feeble-minded, of whom we have fairly reliable records, 20.2 per cent of the male and 33.7 per cent of the female succumbed to consumption, which are respectively twice, and almost four times, the proportions found among the general population. The percentage of consumptive mothers is particularly remarkable with the feeble-minded. The scope of this report will not allow me to give this phenomenon here a detailed consideration, but I cannot but wish to impress the reader with my firm conviction that we have in the consumptives a class of individuals which deserves at least an equal amount of scientific attention as any of the classes which are of a distinct neuropathic nature; I am further convinced that the study of these latter classes can never be complete without an equally elaborate study of tuberculosis.

Heart diseases, puerperal accidents and violent deaths are also more common causes of death among the parentage of the feeble-minded than they are among the general population. The eleventh census records show that 4.7 per cent of adult male and 4.6 per cent of adult female in the United States die of some heart trouble; the proportions on our table are re-

*American Journal of Insanity, I. 1896; also 25th Annual Report of the Middletown State Hospital, 1896, p. 150, et seq.

spectively 11 per cent and 5 per cent. The violent deaths amount to a little over 20 per cent in the male, and puerperal causes are responsible for the death in about 24 per cent of the female. The proportion of deaths due to accidents and violence, amounted in New York State, in 1895, to a little over 4.6 per cent of the total population. According to the above record, it may be almost said that the fathers of the feeble-minded die only of four causes, namely, of consumption, of some brain trouble, of heart trouble, or of violence, and the mothers of only three causes, namely, consumption, puerperal accidents, and brain troubles, the other death causes being but exceptions. Of how much value would it be if we knew not only more of the death-causes, but also some facts about the life of these parents.

(d) The stated cause of the mental defect of the patients:

The case-book records of such causes at the Syracuse state institution are relatively full, and I found, as mentioned already, a comparatively clear statement concerning the cause of 446 out of 1,000 consecutive admissions. I have obtained, furthermore, through the courtesy of Dr. J. C. Carson, superintendent of the Syracuse state institution, and that of Mr. C. W. Winspear, superintendent of the Newark State Custodial Asylum for Feeble-Minded Women, a record of 500 consecutive cases admitted at this latter institution, and these records gave me 150 fairly clear statements in addition. Thus the whole number of cases which becomes available for an analysis in the study of the supposed causes of feeble-mindedness amounts to 596. This number is quite sufficient to give a little idea of the etiology of the mental defective; more than this the records can hardly give, for in all probability the majority of them contain only a part of the whole truth, and that sometimes even a part of a secondary importance.

We find that individually the stated causes of feeble-mindedness are very numerous, but they can be easily reduced to a

few classes, in a similar manner as it was found possible with the death-causes among the parents of these patients.

In a great number of cases it is simply stated that the cause of the mental defect of the patient is heredity. Such a statement was found unqualified in 115 out of the 596 cases, or in almost 20 per cent of all the records. This category of cases embodies undoubtedly a multitude of various of the more marked predisposing factors.

In 50 additional cases, or in 8.4 per cent of the total of statements, the heredity is reported to be direct; in other words, that one or both of the parents were also feeble-minded or idiotic.

In 113 cases finally, or in 18.9 per cent of the total, the predisposition is defined more closely. The following is a systematic arrangement of these interesting records:

Stated Predisposing Cause.	Per Cent. from the Total of Statements.	Per Cent. from the Total of Stated Hereditary Causes.
Consanguinity of parents.....	15	
Incest-children.....	3 } =18, or 3%	or 16%
Parents paupers.....	4	
Parents depraved.....	7 }	=15, or 2.5% or 13.3%
Mother disreputable.....	3	
Father hung for murder.....	1	
Father insane.....	4 }	=11, or 1.8% or 10%
Mother insane.....	7 }	
Parents alcoholic.....	2	
Father alcoholic.....	2	
Mother alcoholic.....	6 }	=12, or 2% or 10.6%
Conceived in drunkenness.....	1	
Mother opium eater	1	
Mother immature (12 or 13 years old).....	1	
Mother's efforts at abortion.....	1	
Some serious affect of the mother during pregnancy.....	55	or 9.2% or 48.7%

The whole of the above table is sadly incomplete, nevertheless it is instructive. Depravity, insanity, drunkenness, crime,

incest, pauperism, besides feeble-mindedness itself, and epilepsy, which last condition we have not even touched upon here, those are the characters of a large number of the parents of the mentally defective. We have no data as to prostitution in the mother, but a number of the patients are recorded as illegitimate children.

The last item in the above table requires a little special consideration. As we see from this record, in almost half of all the cases where the existing predisposition is specified it is stated that some effect of an accident to the mother, during her pregnancy with the child in question, resulted in such a predisposition. The belief that various effects, especially shocks, and various accidents of a more tangible nature happening to a pregnant woman, can influence the foetus through the mother, is very old and almost universal, but it has never as yet been clearly demonstrated how much truth, if any, there is in this vulgar supposition. It is easy to conceive how a serious disease, or any prolonged debility, or serious disturbance of the nervous system of the mother may affect the child in her womb, a child which is entirely dependent on her for its nutrition. It is also not impossible that a severe blow may not reach and injure the foetus; but when we come to the question of the effects of single shocks, or a momentary fright of the mother upon the foetus, and particularly when this happens near the end of the pregnancy, when the foetus is almost fully evolved, the case becomes very hypothetical and uncertain. There are certainly numerous mothers who have undergone such shocks or frights, and who, if they have not aborted in consequence, have given birth to entirely normal children. I am inclined to consider many of the above causes of this order rather as misconceptions than realities. The average mother believes in a very much more intimate connection of her unborn child with herself than there really exists. Such a mother takes generally very little interest in the troubles of

any further than her most intimate relatives, and she is far from knowing that a crazy aunt or a drunkard uncle, of herself or of her husband, may be an indication of a very serious nature concerning the welfare of her own children. This mother receives some shock or injury during some part of her pregnancy. All the women around, and perhaps even her physician, tell her or have told her before, of how serious consequences such an accident may be to her child. Granted the child is born in any way defective, is it not more natural for the mother to blame the cause which affected directly herself, the child's only protectrix before its birth, during the pregnancy, than her or her husband's grandfather and grandmother? We have a striking illustration of this point in the statement concerning one of the Newark patients. As a cause of the imbecility of this child, the mother claims that, while carrying it, she was frightened by an idiotic person. But the same patient has an insane aunt, and a feeble-minded sister, both of which facts were considered secondary to the fright of the mother. And some such circumstances would be found, I am quite confident from my inquiries into the subject, in the majority of the cases of this order.

Among the 55 cases where some accident to the mother during the pregnancy has been recorded as the cause of the imbecility of the child, fright was stated to have been such an accident in 23, or almost a half, of the cases. The 32 remaining statements, many of whom are more worthy of our attention, were specified as follows:

Tuberculosis during pregnancy.....	1
Fever and ague during pregnancy.....	1
A serious sickness during pregnancy.....	2
Mother physically injured during pregnancy.....	5
Mother abused during pregnancy.....	3
Mother very weak during pregnancy.....	1

A shock to mother during pregnancy.....	1
Mental troubles of mother during pregnancy.....	2
"Troubles" of mother during pregnancy.....	2
Anxiety of mother during pregnancy.....	9
Grief of mother during pregnancy.....	1
Mind affected during pregnancy.....	1
Depression during pregnancy.....	1
Overtaxation during pregnancy.....	2

Some of these stated conditions may have dated from before the conception.

So much for parental direct heredity and for the earliest acquisitions. As a little supplement to these, I am enabled to present a few data as to collateral and indirect heredity. I found statements to this effect in 52 of the Newark patients. Out of these 52 cases, there were cases of insanity in the patient's family in 15 instances, out of which 5 were in one or more brothers and sisters; in 34 instances there were feeble-minded or idiots in the relation, and 21 out of these were in one or more brothers and sisters. One patient's sister was a prostitute, another's brother is a criminal, and still another grandmother is an opium eater.

The individual causes of feeble-minded are at least as instructive as the hereditary causes, and they are of more importance to the physician than these latter; being, as they are, mostly diseases and accidents, they touch the physician closer, and it is with them where he can best and earliest exercise his preventive measures.

A large proportion of the individual causes in question should undoubtedly be looked at as only the exciting, and not the whole causes, or perhaps as only collateral manifestations of the imbecility. I consider as the main among such causes epilepsy and convulsive disorders. But there is yet remain-

ing a fair number of instances where a child was healthy up to perhaps its sixth, seventh or even tenth and eleventh year, and then it suddenly, after a disease or an injury of some kind, became mentally defective. It is still probable that there existed in such a child some latent bad predisposition. I gave some time ago special attention to traumatic insanities, and I could in a great majority of such trace some bad family history of the patient which alone might have at some time been sufficient to condition a mental disorder; and we may possibly find a much similar state of affairs with the feeble-minded. It is a fact, however, that I met with a few instances among these latter where bad hereditary influences were either very feeble or apparently entirely wanting, and it seems to me that there is a possibility of the existence of a certain small percentage of cases where the mental defect is a pure acquisition. By all means, this class of imbeciles deserves the more immediate attention of the physician.

The individual causes can be presented to advantage in a similar way as were the hereditary causes, in the form of a proper classification. The total number of instances where such causes were given is 306, or a little more than a half of the total statements found in the records of the 1,500 patients. This number of supposedly acquired cases is certainly excessive, and is alone a proof that many here stated agencies are but the exciting and secondary causes of feeble-mindedness; should it not be so, the imbeciles and idiots would be far more numerous than they are at present. Besides this, the nature of many of the stated causes of imbecility shows plainly alone that they themselves might have been in many instances only the collateral manifestations of some more general and pre-existent pathological state of the nervous system, which state eventually conditioned also the feeble-mindedness. A glance at the subjoined table will demonstrate these contentions:

The supposed individual causes of feeble-mindedness:

	Cases	Per Cent. from the Total of Statements.	Per Cent. from the Total of Acquired Cases.
Convulsions of some kind, in infancy or early childhood.....	55	=76, or 12.7%	or 24.8%
Epilepsy.....	21		
Chorea.....	3		
Brain fever.....	8		
Meningitis.....	10		
Cerebro-spinal meningitis.....	2		
Paralysis of some kind.....	10		
Sunstroke.....	2	=67, or 11.1%	or 21.9%
Cerebral anæmia	1		
Some brain affection.....	4		
Hydrocephalus	14		
Microcephaly.....	1		
Some nervous trouble.....	1		
Accidents of teething	11		
Fright.....	6		
Nervousness.....	1		
Forcible seclusion.....	1	=15, or 2.5%	or 4.9%
Forcible isolation.....	1		
Masturbation...	1		
Ill Nourishment.....	1		
Neglect	2		
Opiates	5		
Opium habit	1		
Alcoholism.....	2	=11, or 1.9%	or 3.6%
Strong medicine.....	2		
Tobacco abuse.....	1		
Injury at birth.....	5		
Fall	37		
Blow on the head.....	2		
Blow on the chest.....	1		
Abuse	3		
Burn	1	=55, or 9.2%	or 18%
Exposure to heat.....	1		
Operation.....	1		
Button in nose.....	1		
Cork in nose	1		
Lightning stroke	1		
Drowning.....	1		

	Cases.	Per Cent. from the Total of Statements.	Per Cent from the Total of Aquired Cases.
Scarlet fever.....	30		
Diphtheria	6		
Croup	2		
Measles.....	6		
Measles and typhoid.....	2		
Variola	2		
Whooping cough.....	4		
Cholera infantum.....	1		
Cholera morbus.....	1		
Infant diseases.....	1		
Malaria.....	1		
Fever and ague.....	1		
Rickets	1		
Rheumatism	1		
"Fever"	9		
"Sickness".....	14	=82, or 13.7%	or 26.8%

Seventy-six cases due to convulsive disorders or to epilepsy; 227 patients, out of the whole of 969 records from Syracuse, had epilepsy or some other convulsions; 20 epileptic patients found among only the casual of the Newark records. These are proofs, and that yet very incomplete proofs, of the formidable relations of imbecility with convulsive tendencies and with epilepsy. At this junction there comes forcibly into one's mind the picture of the ordinary epileptic dementia, and there appears to be so much similarity between it and the state of at least some of the imbeciles that it is impossible to contrast the two sufficiently. I studied the Craig Colony epileptic inmates right after the feeble-minded of Syracuse, and, but for the symptoms of active epilepsy, I could not see in many of the former but almost exact counterparts of the latter. This report is no suitable place for hypothesis, but perhaps I may be allowed, on the basis of the above stated facts, supplemented with my personal observations, and by the record of heredity, a reflection: Do not at least some of the

feeble-minded represent but a further, earlier, perhaps congenital, form of epileptic dementia?

Brain and nervous diseases come almost naturally for a large share among the causes of imbecility. It could hardly be expected that such a severe brain affection as meningitis, or a cerebro-spinal meningitis, would not leave behind some permanent brain weakening. The case is, however, different with such affections as chorea, paralysis, and especially the nervous irritation of teething; with these causes there were probably some others, unobserved. The same may be also said of probably all the cases of the third division.

A very interesting item of the table is the fourth group of causes, which comprises opium, alcohol and tobacco. I do not think we can give much weight to the two statements where strong medicines should have produced the mental defect; the real cause in these cases was in all probability the disease for which so "strong" medicines had to be administered. The fact is different, however, when we come to opium. In one of these cases we have a clear and reliable testimony that the mother gave the child during its first eighteen months of life 200 standard bottles of Winslow's soothing syrup, which would probably suffice to make of any infant an idiot. We have also serious instances of a real juvenile opium-habit, and we are ignorant as to how many bottles of paregoric or soothing syrup the other four opium victims were given. The alcohol cases deserve equal attention. As to the child, however, which acquired an early tobacco-habit, and should have become feeble-minded in consequence thereof, it might be well to reserve all opinion until after we have been able to give a thorough scrutiny to the family history.

Traumatism plays, according to our data, a considerable causative role in imbecility, and this is especially true of falls. It would, however, be wrong to allow the causative credit to all the falls here recorded. When we look a little closer into

these particular cases, we find frequently some statement like this, together with the fall-theory: C, 245, N. C. A.: "Had epileptic fits; also, was struck on head when three years old and has never been in right mind since." C, 293, same institution: "When the child was two and one-half years old the mother fell down a flight of stairs with it; it also had diphtheria and scarlet fever;" and similar. We have no means to ascertain in how many of the fall-cases there existed such collateral conditions.

Blows on the head may be imagined to lead to imbecility, in the same way as some falls, by starting an acute or a chronic meningitis, or by directly injuring the brain through concussion. The chest-blow case is obscure. "Abuse" means, no doubt, a serious maltreatment, and belongs to the same category of cases as the falls and head injuries. In the instance of burns, drowning and lightning-stroke, it may have been the shock, the nervous strain, or the consequence of the burns, drowning, or lightning-stroke, or both together, which affected the brains of the children. One of the cases of burn was that in a new-born infant, whom the mother purposely exposed to a grate fire for a period of thirty minutes, an act which could not be without grave consequences to the infant.

The "button in the nose" and the "cork in the nose" are two peculiar cases. They both occurred in female children. The button is stated to have never been removed, while the cork was found after a year or so. As to collateral conditions we know nothing in the first case, and only so much in the second that the accident happened in the girl's fourth year, and that when she was very small she had fits.

The last category of causes will be well appreciated by the student of the rarest sequelæ of infantile diseases. The particularly striking item in this group is scarlet fever. It may not be generally known that scarlet fever does in so many cases produce, or at least rouse, consequences of this order;

it is certainly not generally mentioned in treatises on scarlet fever. We can find some cases ascribed to this disease among the lowest idiots. Diphtheria, measles and whooping cough compose the next larger groups, but they all together do not equal the effects of scarlet fever alone. The production of feeble-mindedness by any of these diseases must always be of a complex character, and in order that we should properly understand these cases, it will be necessary to study them carefully outside of the asylums, in their very evolution.

All the individual causes of imbecility are apparently mostly effective in infancy and in early childhood. We have not sufficient data to form a scale illustrative of this condition, but the average age at which the defect is acquired, or evoked, would correspond to about two or two and a half years. The instances where the disorder developed above four years of age are exceptional. I will state here some of these instances in detail. Thus:

Case 184, vol. V., Syracuse state institution, became feeble-minded after scarlet fever, at ten years of age.

Case 204, vol. IV., Syracuse state institution, became feeble-minded after measles, at five years of age.

Case 205, vol. IV., Syracuse state institution, became feeble-minded after drowning accident, after six years.

Case 88, vol. V., Syracuse state institution, became feeble-minded after a fall, at six years.

Case 88, Newark Custodial Asylum, became feeble-minded after meningitis, at eleven years.

Case 434, Newark Custodial Asylum, became feeble-minded after sickness, at eleven years.

Case 144, Newark Custodial Asylum, became feeble-minded after diphtheria, at nine years.

Case 388, Newark Custodial Asylum, became feeble-minded after cholera infantum, at six years.

In connection with these cases we have a few valuable indications which show that some form of serious heredity can be latent in a child and develop under provocation into feeble-mindedness. The most noticeable example of this is the above case 434, of the Newark Custodial Asylum. This girl, who is now only fourteen years old, is stated to be feeble-minded only since she was eleven; the rest of her record informs us that two nieces of her father are weak-minded or insane. The predisposition the girl carried was probably quite feeble, but it became sufficiently strengthened by the effects of the sickness, and the result of both together was the mental defect which she bears at present.

The question as to how far the morbid state of the individual patients correspond with the gravity of their predisposition could not be well ascertained during my examination, principally on account of the lack or uncertainty of the data about many of the patients. One thing can be said, however, and that is, that not all of the apparently acquired cases are of a lighter character, nor are all the hereditary ones of the gravest nature. But there is a great deal to learn yet in this direction.

If we examine some of the fuller statements about the feeble-minded, we come occasionally across an instance where the hereditary influences are so great with a patient that he cannot possibly be looked at otherwise than as one of the final steps by which nature eliminates the family by a progressive degeneration. For example:

Case 46, Newark State Custodial Asylum.—“Father and mother were first cousins; father’s brother an idiot; mother’s brother weak-minded.”

Case 155, same institution.—“Father a chronic invalid; mother a confirmed drunkard; sister insane.”

Case, 262, same institution.—“Is from a pauper race, being a representative of the fourth generation of paupers; her child, and an illegitimate one of a sister’s, being the fifth generation.”

Case 324, same institution.—“Weak-minded from birth. The family to which she belongs are very weak-minded from three generations.”

Case 341, same institution.—“Bad habits; masturbation; mother not bright; grandmother insane; aunt had fits.”

And this list could be prolonged even from our scarce data. It is probably on most of the feeble-minded of this nature where all the physician’s efforts are and will ever be lost.

There remains only one item on which we have a few data, which may be properly considered in this connection, and that is the *fate of the progeny* of the feeble-minded. We have seen already that many of the patients had weak-minded parents; we can supplement this category with a few facts observed directly on the patients themselves. And here before all it is necessary to remark that the adult female imbecile is almost, as a rule, more or less of a sexual libertine. In some cases the woman will simply yield herself to whoever may wish her, without appreciation of what she is doing. She will have children, as long as she is not in the proper institution, with anybody—a brother (case 58, Newark Custodial Asylum), or an entire stranger, and “she knows not, nor cares, who is the father of the children.” It is probably one of such cases of which we find the following record in the Newark Custodial Asylum (case 258): “She wandered around the country and had children as rapidly as possible.” Among the 500 records of this custodial asylum we find that 18 women are marked as having had children, 5 as married and 13 as unmarried; and these data are considerably beneath the reality. These are facts which will be very available once in the study of the common prostitute. But there are other feeble-minded women who manifest real immoral tendencies; we have notes on 19 such among the 500 Newark cases. These patients correspond more, I think, to the masturbation cases in the male; they are mostly more serious cases, and not so liable to have progeny as the previous.

In most of the 18 patients with children, no mention is made about these; but in at least four instances we have distinct and characteristic records, which read as follows: "Had three children, all of a low order of intelligence;" "Has a child four years old, imbecile;" "A child in insane asylum, one with her, two dead;" and "Three children, all dead."

The state of the progeny of the feeble-minded will, it will be seen, do but little honor or service to society, and this should make most strenuous efforts to hinder similar untoward production. There is necessity for a much greater supervision of the poor and county houses. It is a shame for society and for the medical profession when a half-idiot woman, who has been so from birth, is allowed to have, in a poorhouse, under the public care, "four or five children during her stay there" (c. 73 N. C. A.); and this is by no means an isolated instance.

So much for the more direct factors of the etiology of feeble-mindedness. What I have been able to present here is only an outline of the real conditions, and is far from embodying all the real facts. It is impossible to properly study the etiology of any class of abnormal individuals from their case-book records, but this is particularly difficult to do with the imbecile and the idiot, who are often friendless or orphans, and about whom nobody takes the trouble to investigate. And yet, what can be of more importance to us in our effort to know, to hinder the multiplication of, and to ameliorate these individuals, than a most thorough knowledge of their etiology? It seems to me it is here where lies the most important duty of the authorities who deal with the feeble-minded, and that this duty consists of using every means at the disposal of such authorities, to promulgate the study of the causes of those mental wrecks who are under their direction. I hope to return to this point again in my conclusive remarks.

[TO BE CONTINUED.]

HINTS TO THE OFFICERS OF INSTITUTIONS FOR THE FEEBLE-MINDED.

Abstract of an address delivered before the Association of Superintendents
of Schools for Feeble-Minded Children.

BY J. MADISON TAYLOR, A. B., M. D., PHILADELPHIA.

It may not be amiss to use the time and opportunity which you have placed at my disposal to offer a few remarks in the nature of suggestions on such questions as my experience qualifies me for doing. I hope that I may escape giving offense if what I urge is already a part of your knowledge and convictions, or it may be on the contrary you shall fail to agree. I would much prefer to have as listeners the managers of such institutions, because my conviction is that they often know too little, and realize insufficiently, matters which are for you a common knowledge. It may be well, in explanation, to say, that I enjoy the honor of being consulting physician to three noble institutions for the care and education of backward-minded children, and hence my suggestions are based solely upon my experience in visiting and working in these schools. First, then, let me speak through you to the parents and to the family physician, and beg for a more prompt and accurate recognition of feeble-mindedness, in whatsoever form or degree it may exist, so that, at the very earliest possible time, there may be instituted remedial and educative measures. This, as you well know, is the cause of much discouragement to all teachers. It is needless to enlarge upon the endless difficulties and discouragements which complicate the conditions which are the result of bad habits acquired at home. Some of these are due to palpable neglect, others to overmuch fostering care

and injudicious coddling, but the worst of all is the outcome of the blindness which results from years of unwillingness on the part of parents to admit, even to themselves, that their child is different from other children; a refusal on their part to place their child in the hands of those who, by thoughtful study and experience, have acquired the capacity of properly directing wayward qualities, or of wisely developing those of latent weaknesses, or otherwise giving to warped or feeble intellects the essential training necessary to equip them with so much of symmetrical qualities as they are capable of acquiring. This would alone be a fruitful subject for an hour's earnest talk amplified by a free discussion.

The second hint I would give is partly to yourselves and partly to the managers, and that is, the value of the separation of the idiot from the backward-minded. For idiots practically nothing can be done, except to provide them with those items of comfort and training in decency which our heartfelt pity for their condition would prompt. They need little more than tender care and training in the decencies of life. The backward-minded children would be much better for a separate life, and certainly they can never expect to improve, because of their enfeebled mind and susceptibility to imitation, if they are maintained in close association with creatures of mere animal-like tendencies, as the idiot. There is demanded for them special forms of education, of a slower and simpler sort than for normal children; but it is of the utmost importance that they should come in contact, more or less systematically, with healthy-minded children of their own age and sex, and on common grounds. This, moreover, should be secured for them regularly and increasingly, as their individual progress warrants.

Third—The widespread and vigorous movement growing now throughout the land, to enforce the medical inspection of all schools, is of particular interest to yourselves. As soon

as this medical inspection is systematically and wisely pursued, we shall have a great increase in the number of applicants for vacancies in the schools for feeble-minded. This will bring to light many defects of mind, not readily recognizable, or at least such as will readily escape detection; and, as the authority and skill of these inspectors become greater the special classification between the different grades of mental defects will not only be recognized, but enforced. Moreover, a large number of more or less obviously defective minds can be recognized as due to mere physical defects which are remediable, as I pointed out in my address before the meeting of the Pennsylvania state board of health at Millersville. Many of these so-called temporary defects are chiefly due to the results of under-feeding; deprivations of various sorts, both moral and physical; cruelties practiced by thoughtless or brutal parents; slight malformations or over-growths, as adenoids of the pharynx; to defective eyes; to defective ears and the like,—all of which have been receiving a good deal of attention at the hands of scientific men. I have recently been giving a good deal of attention to another line of defect which promises rich results, and that is, to disturbances of the heart and circulation. Dr. F. S. Pearce and I have been going into this steadily now for some time, and hope to present some important facts and deductions for your consideration. The blood supply is obviously of the greatest importance, in not only bringing about right action of normal organs, but also producing grave effects upon the under-developed organ.

These disturbances exert grave influences upon the lungs, the digestive system, and above all, the brain itself. Dr. Curtin has already called attention to slight congenital defects of the heart in producing what he called "dwarfed lives," and has read a paper on this subject, very suggestive, before the Climatological Society. A low grade of mitral stenosis is at the foundation of many a damaged life and character.

Alterations and defects in the peripheral circulation can easily be seen to exert serious effects upon many organs, especially those of sex. Much of this can be remedied, and where this is not possible, at least it will throw much light on prophecy.

Fourth—It will, I feel sure, be obvious to you as to me, that we should make a clear and practical differentiation between the grades of defectives from mere backward-mindedness to low imbecility. Some of the cases which seem most hopeless and confirmed, are, in reality, capable of much alleviation from physical repair, as has been already pointed out. Others, again, about whom much hope has been entertained, are found in the midst of progress to come to a condition of hopeless standstill, or grow actually worse, or have developed hitherto unsuspected mental or moral delinquencies. The causes, in short, are various, anatomical, collateral, acquired or contributory, and between these the gamut is oftentimes irregularly run.

Fifth—In order that the best work may be done by the consulting staff in institutions for the feeble-minded, there should be a greater encouragement offered them for sustained work. In most of the large institutions there is now, I believe, a fair array of distinguished specialists among the consulting staff. I look about in vain for evidences of the result of their work in any sense commensurate with their capacity. Let us look for a moment into the causes of this defect. The position is a purely honorary one, and offers merely the opportunity for charitable work and clinical research. If these specialist consultants are interested in any particular subject, they will gladly avail themselves of opportunities thus offered. Sometimes, no doubt, their interest is sustained by opportunities for constant observation; but much more frequently their interest wanes after a time from various natural causes, and they give less and less attention to the work. Moreover, un-

less there is some particular reason for their visits, such as the clinical studies alluded to, or a special call from the physician in charge of the institution (which last, by the way, is singularly rare), the effort to make a visit to an institution, usually many miles from their home, is not only an actual loss of time, but of money. It usually occupies a full half day or more, necessitating neglect of continuous professional opportunities at home, including absence from an office hour, which means so many dollars in hand. This question, then, of actual and possible loss must be borne in mind by the managers when they feel occasion to blame, as they not seldom do, the slackening of zeal exhibited by the consulting officers.

Sixth—We have at present two classes of schools for backward children,—the large, elaborately equipped institution and the smaller private school. The point I wish to make here is that these are in no sense antagonistic, but should, and could readily be made to usefully supplement each other. Undoubtedly the best work can be done in small, well-equipped schools, where a larger degree of personal attention can be given, and the elements of a home life can, and should, be offered and maintained. A child retained for too long a time in the routine of a large establishment, where he is but an indifferent atom in the make-up of a great machine, suffers under the best of circumstances; and particularly so if he is already lacking in the finer sympathies and acuities. It would seem to me that a change to a closer contact with sympathetic people would possess much value. Indeed, it might be possible that, connected with, and supplemental to, the greater institutions, some form of cottage life might be valuable as that pursued at Bielfeld and Gheel.

And lastly, one word as to the value of castration. This is a most delicate subject, but some considerable experience gives me the conviction that often it is necessary to adopt this course, no matter if it be shown to be in a sense an evil. As-

suredly the procreation of offspring from those of feeble minds is to be emphatically deplored. I might almost say it is never to be desired. If, then, procreation may be laid aside, what is the value of the sexual instinct to those defectives? Undoubtedly much harm results from a cultivation, or even retention, of these instincts, especially where they are morbidly increased. The conclusion seems clear, then, that it is wise, when in doubt, to remove the organs which the sufferers are unfit to exercise normally, and for which they are the worse in the unnatural cultivation or use. On this point many prominent authorities are boldly advocating extreme measures of relief, of which castration is the chief.

John ——, not having the power of consecutive application to sloyd or other delicate occupations, was given a floor polisher for exercising the coarser muscles for a half hour daily. The little lad, ambitious to convince his instructor of his ability, would push away vigorously for a time, but occasionally his activities would lapse, and he would lean upon his polisher handle very much after the proverbial attitude of his brighter brother over the hoe handle. On one such occasion, as he gazed out of the window into the far-away, he was heard to soliloquize: "I wish I could die, and go to heaven, where I wouldn't have to polish floors." Then, as though seized with a horrible thought, he grasped the handle of his polisher, and set vigorously to work, with the agonizing exclamation: "But, then, I expect I'd have to polish the golden streets!"

SLOYD.

MISS LUCILE GILMAN, FARIBAULT, MINN.

The word "sloyd" is derived from an old Swedish adjective, "slog," meaning skillful. The term in America and England is generally understood to mean wood sloyd, but on the continent it applies to all "educational manual training," such as metal work, basket and brush making, sewing and cooking, etc. The term "sloyd" is preferable to "manual training," as the latter may imply any menial hand-work which may have no educational value. Its brevity is also in its favor.

There have been many systems of sloyd, but the one generally considered to be the best by educators of this country is the "Larson Course." It consists of a progressive series of thirty-one models, made with forty-seven different tools, and embodying seventy-two different exercises. Sloyd also employs the making and use of working drawings, in order that the child shall have a correct conception of the model before making it. This course usually begins with the seventh grade, and takes the average child, working four hours per week, four years to complete.

The sloyd knife is the most essential tool used. It is the most familiar, simplest, and least mechanical. Its use necessitates constant concentration of thought, which is of the greatest educational value. The child must think before he acts. The knife is especially adapted to form work, which can be tested not by instruments, but by the eye and sense of touch alone; which leads him to exercise his own judgment, thereby increasing his independence in thought and action. It trains the muscles of the arm, wrist, and fingers as no other

tool does. For these reasons the knife is the first tool placed in the hands of the pupil.

This course, for some time used in the public schools of Minneapolis, was introduced into the Minnesota School for Feeble-Minded at Faribault the 15th of last November. In the time which has intervened the majority of the class have completed the three years' work. About thirty-five boys, whose ages range all the way from seven to nineteen, are doing this work. The time is divided into four periods, namely, 8:30 to 10, 10:30 to 11:15, 11:15 to 12:15, 1:30 to 2:30. Several of the boys belonging to the first session work every other day, while those belonging to the shorter periods come in daily. Nine children is the largest number instructed at one time, and seven can work to much better advantage.

The models made by the children are only means to an end. It is the mental and physical development which is desired, and the progress that they make cannot be fully appreciated unless one knows each child individually. Much of the work done compares very favorably with that done in the public schools; and in many instances very crude models may represent greater advancement for that pupil than is usually shown by normal-minded children.

The greatest drawback is their deficiency in number. Few of them can tell the results of one-half of the following: 3", 5", 7/8", 11/16". Even now a few do not know an inch from a foot. When this is the case they need the constant supervision of the teacher. In some cases, after the one year's work was completed, it was thought advisable to give up the drawing entirely, and teach the child to read the working drawings of others. At first the drawings were made almost entirely from dictation; but now most of them are partially, if not entirely, copied. The compass is the only drawing tool used that they have not fully mastered.

They took up the knife work much more readily than the drawing. Few of these boys ever possessed knives of their own, and so handled them awkwardly at first, but have grown quite skillful in their use. In the beginning they cut them selves constantly, but that taught them to be less careless and more attentive to the work in hand. Many of them worked a month before they could cut a square straight edge. One small boy expressed the sentiments of his classmates when he exclaimed, upon being told for the fourth time that his edge was not square: "O dear! O dear! Everything we do in here must be square, square, square, and just as good as ever we can make it."

For six weeks one boy cut the line off as fast as his teacher could put it on. His trouble did not seem to be due to lack of control of the muscles, as in many cases, but rather inability to comprehend what was wanted and to concentrate his attention. He is now on his twenty-ninth model, follows directions readily, and does fairly good work. He had reached his limit in school work and felt discouraged. He now takes a new interest in school, and feels that he is of some consequence after all. This is true of several of the boys who do little or nothing in their other school work.

The most interesting and promising case is that of a boy thirteen years old. The workmanship, neatness and accuracy of both his drawings and knife work are as good, if not better, than would be expected of any normal child of his age. His ability to follow directions and concentrate his thought upon the work would be considered unusual in any child. In making the thirty-one models he has spoiled but two pieces of wood. He has a very good eye for form work. One form model (a penholder) he spent fifteen hours in making, and showed not the slightest impatience. At the present time he can work half an hour without help. He rarely speaks unless forced to, and then expresses himself by single words, not sen-

tences. In his other school work he is very backward. He is in the first reader. It has only been within the last few weeks that he could write his name without a copy. Number work is less difficult for him than reading. He has been in the institution but little over a year.

The advantage of sloyd has been realized to an extent which is very encouraging. Boys who are naturally indolent are industrious for at least one hour in the day. This cannot but have its effect in their other work in time, and has already in some instances. Noisy, high-tempered boys are quiet, and seldom give way to fits of anger. They are acquiring the habits of order, exactness, cleanliness of person and neatness of work. Some advancement has been made toward independence and self-reliance. By slow degrees their eyes are being trained to the sense of form, and their hands to that of touch. Two partially paralyzed boys have better use of their hands, since doing the work, as have also several boys who lack muscular control. Patience and perseverance have been acquired by some to a remarkable degree. Every effort is being made to make them feel the utmost contempt for shams of every description in their work. It is hoped this will lead to the advancement of truth and honesty among them. Destructiveness is less common and the sense of right of ownership is developing in them.

SELECTED.

A STUDY OF THE HEART AND CIRCULATION IN FEEBLE-MINDED CHILDREN.¹

BY J. MADISON TAYLOR, M. D., AND F. SAVARY PEARCE, M. D.,
PHILADELPHIA.

Presented to the Section on Diseases of Children, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7 to 10, 1898.

In the "Transactions of the American Academy of Medicine" (vol. ii., pp. 164 to 189) for 1895 the writers considered the "Causes of Mental Impairment in Children," and the "Causes of Imbecility and Idiocy," the "Varieties of Idiocy," and "Pathology of Idiocy," respectively.

Since that time a study, more particularly of further somatic changes in the mentally feeble children, has been continued, and we have carefully gone over the records of the 532 cases reported in the above communication, with the object in view of tabulating systematically the results obtained as to the "Heart and Circulation in Feeble-Minded Children." In feeble-minded children a large proportion are of defective development in other organs.

A large amount of new material accumulating through our own further studies, and in reports kindly made by physicians in charge of institutions for feeble-minded children, both public and private, have added much to the statistical value of our records, which will be recorded *in toto* and presented in the near future.

It is here intended to make an elementary report to preface the elaboration which will be followed by a fuller compilation.

¹Reprint from Journal of the American Medical Association.

HEART IN FEEBLE-MINDED CHILDREN.

Arhythmia is a notable feature in about half the cases, and especially so in proportion to the aberrant forms, as the Mongolian type of idiot. Intermittent heart we noted but seldom, and indeed in our experience it is more associated with functional disturbances than with organic (brain) changes, as though inhibition overflow mechanism was always at work in varying degrees in the mentally feeble. Thus some sort of pulmogastric stimulus always persists; whereas in functional brain or heart disturbances nature seems to be able to afford complete silencing of the myocardium, again to proceed undisturbed. This also seems to be the case with the ill innervated papillary muscles, for transient, shifting, precordial murmurs not transmitted can, we think, not be explained on any other physical basis, and true organic murmurs are not common. Cases illustrating this phenomena will be detailed in the future work.

Tachycardia occurs in fifty per cent of imbeciles, depending much on the degree of brain capacity and type of case—more marked in idiot savants and in microcephalic idiots.

Brachycardia is not an unusual phenomena, and occurs more in hydrocephalic, slight cerebral pressure cases, and in the sporadic cretin, in which latter the use of thyroid has increased the pulse-rate permanently, along with the bettered mental and physical condition of the child.

Increased area of precordial pulsation exists in about one-third of the cases of imbecility, in one-half of which the hypertrophy is not sufficient to account for, and, we take it, must be due to transmission of unharmonious muscle-action, as implied in the above paragraph.

Transient thrills occur in many cases, and more at the apex, perhaps—but this is to be further studied—due to close proximity of the apex at the sixth rib to the chest wall.

Transposition of the heart we have not met with, nor of other organs, although considerable shifting without added acute disease. Reason for the same was noted in a marked number, and reminded us much of an adult case of a contortionist athlete with sequent bovine heart, in which the subject was able to shift the apex back and forth by extrinsic muscle effort. At autopsy we found a large, fatty heart, and pericardial adhesions that might be causative in the shifting by the mechanism above detailed. This case was seen by one of us as interne in the Presbyterian Hospital of Philadelphia, and has been reported by Dr. R. G. Curtin, in whose clinic it occurred.

Bruits in the neck are few and inconstant. The hybrid between functional and organic murmur, as noted above by irregular valve leaflet action, was the principal lesion noted among the patients so far studied.

Pulse seems to follow less closely the result of the cardiac action, as above detailed, less frequently than is known to exist in persons of normal mentality, ruling out any gross cardio-vascular malady. It is not uncommon to detect rapid heart, with synchronous pulse, but only temporarily, and the next fifteen minutes perhaps both fast or both slow, or, indeed, vice versa.

There is also apt to be much difference between the two radical or two dorsalis pedis pulses—all in fact out of true coördination, as may be suspected on thought by the disturbed, ill-made governor—the brain mass of stunted, deficient micro-chemically weakened central neurons.

Conditions of edema are singularly rare, notwithstanding the disturbed and apparently markedly separately acting vaso-motor systems, conditions (and of the blood) which demand wider study, as do skeletal conditions in imbeciles.

SOME DISEASES COMMON TO THE FEEBLE-MINDED.¹

BY MARTIN W. BARR, M. D.

Chief Physician Pennsylvania Training School for Feeble-Minded
Children, Elwin, Pa.

Presented to the Section on Diseases of Children at the Forty-ninth Annual
Meeting of the American Medical Association, held at Denver,
Colo., June 7 to 10, 1898.

I count not the least valuable to myself of my former collaborations with the late Dr. Isaac N. Kerlin a study that we made together, with intent of reducing to tabulated form, of those diseases most common to the feeble-minded. This study involved the examination of medical records of 1,400 cases, covering a period of twenty-five years, and I have since extended it so as to include some 3,000 cases. Sifted out, we find the diseases, some eighty in number, distributed equally among the sexes, and in varying proportion in the different grades. Broadly considered, there are three conditions or classes which the feeble-minded present to the eye of the medical observer, with modifications, of course, in different grades, causing the individual, therefore, to repel or to succumb to disease each in a different way. We have, first, a physical development according to age, susceptibilities to pain or pleasure being almost normal, and the mental development fair, but limit reached in early youth; what we would call mentally feebly gifted but physically normal, meeting disease much as do normal people under similar environment and with average longevity. Second, are those undeveloped in mind and body, as the cretins,

¹Reprint from Journal of the American Medical Association.

for instance, predisposed from birth to certain forms of disease and an easy prey to any.

In marked contrast are those who exhibit almost entire habitude to pain, able even to endure amputation without flinching and rather enjoying anything that gratifies the egotistic sense or that brings the individual into notice. He is ignorant of pleasurable sensations, absolutely devoid of sympathy with his kind, and, being absorbed in self, his thoughts are constantly inverted. It is from this class that many of our criminals are drawn. For them the gallows has but few terrors, and they suffer the extremes of heat or cold, and even the pangs of hunger, without the consequences common to those of ordinary type.

Lastly, those physiologically old, who either wear out in childhood of "old age," or else, as old people too feeble to resist sudden attack, die in youth or early childhood. Included in this class are those who seem made of such poor material, whose tissues necropsy reveals as absolutely worthless, that they are unable to resist disease or any nerve storm, and simply go to pieces. Reviewing these peculiar types the physician ceases to wonder at various apparent anomalies one constantly encounters in our hospital wards. Here one falls and passes away from slight cause that would hardly affect a normal babe; another, at the very gate of the grave, with hardly a pulsation or a breath, will suddenly revive and recuperate as a normal person could hardly do.

The major nervous diseases, such as Friedreich's ataxia, syringomyelia and hydromyelia, which one would naturally think allied to brain diseases, are practically unknown. Anterior poliomyelitis is occasionally found, but the most common nervous diseases are the cerebral palsies of childhood. Meningitis is also common, and confined almost exclusively to boys of the high and middle grades. Hysteria is peculiar to these grades, but occurs most frequently among the girls, as do the various neuralgias. True chorea is rare, and found not at all

among the lower grades, and only in about five per cent among the higher, although choreiform movements are fairly common. Epilepsy claims about twenty per cent of the feeble-minded, chiefly of the imbecile and idio-imbecile class, and is seldom seen in the idiot, either apathetic or excitable.

There is much hereditary predisposition to lung troubles which, coupled with lack of resisting power, renders such complications as phthisis and pneumonia inevitably fatal. Asthma, bronchitis and pleurisy are not frequent, nor is laryngitis, while tonsillitis, pharyngitis and rheumatism are common among all classes, the latter among the boys of the higher grades. Ephemeral fever occurs with the temperature running so alarmingly high that fatal results seem inevitable, and then as suddenly subsides in response to the simplest remedies.

Cutaneous affections are rare among the high and middle grade imbeciles, though frequently met with in the low grade and idio-imbeciles, due doubtless to inertia and the sluggish and unclean habits that characterize these classes. Eczema is common, lingering, and persistently returning in spite of most careful treatment. *Rupia escharotica*, tinea, acne, alopecia, impetigo, herpes, erythema nodosum and urticaria are among the list of cutaneous diseases. *Acne sebaceum*, or "butterfly disease," of which but twenty cases, including three of my own, are reported, seems to be confined exclusively to the lower grades of mental defectives. Ulcers are frequent, especially on the upper and lower extremities, and are obstinate in responding to treatment.

The sluggish habits of these children find the usual results in constipation, dysentery, diarrhea, dyspepsia and gastritis. Gastric ulcers are found occasionally among the boys, with the girls never. Enuresis is common among all grades, and is often incurable. Hemorrhoids are rare among the lower grades, but are common among the higher grades of both sexes, as are also hernia and prolapse of rectum. Deficient circulation is almost exclusively confined to imbeciles of the

lower grades; thus cyanosed hands and legs and blue lips are characteristics of the idio-imbeciles, as also of the grades of the Mongolian type, who often develop scrofula. Syphilis is rarer among the feeble-minded than is generally supposed.

Defective vision due to errors of refraction is found among ninety per cent of the high and middle grades, and among the low grades there is much conjunctivitis, iritis, corneal ulcer and blepharitis. Tests and also class work in the schools reveal a fair possession of color sense, and color blindness is the exception rather than the rule.

Absolute deafness is equally uncommon even among the members of the idio-imbecile and idiot class, although partial deafness is occasionally met with. Both sexes are subject to otorrhea, and especially to otitis media. Hematoma auris is met with in twenty-five per cent of boys, and is confined almost exclusively to the left ear. I know of but one case double. Adenoid growths are a fruitful cause of the speech defects found in the high and middle grades, and their early removal greatly facilitates that training in articulation which holds an important place in all schools for defectives.

This rapid résumé of a subject of which the limits of this paper will not permit more than a glance may, I trust, be the means of eliciting notes of similar experience from others engaged in work among the mental defectives. These collected may in time form a sound basis of theory such as may aid materially in the practical work of the future in our hospitals.

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EDITORIAL.

FUTILITY OF SURGICAL TREATMENT OF IDIOCY.

The popular mind has become thoroughly aroused on the subject of surgical interference in epilepsy, imbecility, and kindred manifestations of cerebral disease or disturbance, and those who have the medical charge of such unfortunates are frequently approached by friends with proposals for such operation. It is a pity that such operative procedure should have proved so rarely successful, yet no other result could have been reasonably expected. It was argued that where an injury occurred or where a small focus of disease existed it was rational to cut out this offending portion, and thus relieve the existing

cause of the mental (or motor) retardation or disturbance. Or again, if the growth of the skull ceased, it was regarded as probable that the sutures had united before the brain had obtained its normal size, and the surest remedy would be to cut out a long, narrow portion and allow the skull to resume its growth. Scores of operations were done, and a careful study made of the cases operated upon.

At first the operation appeared valuable, but it soon began to fall into disrepute as some cases only showed transient improvement. Others exhibited a steady increase in mental power, but probably no greater than cases not subject to operation who would have been given the same attention. In many others, death has followed the operation, which was perhaps not altogether to be regretted. But such a method of relieving the community, and at the same time depriving these unfortunates of a life nearly or altogether aimless, is not in accordance with the higher instincts of our nature.

Had the pathology of such cases been looked into a little more closely the operation in question would probably not have attained the prominence it did secure.

In the first place the lesion to the brain, in injury to the skull is not always confined to the surface, or is it always under the point where the blow fell. Every surgeon is familiar with the way in which the lines of force will travel around the skull and cause a lesion at a distant point, so that trephining in such cases would be fruitless. Several years ago it was demonstrated before the Association of Officers of American Institutions for Feeble-Minded that microcephaly was generally due to cessation of the growth of the brain from some cause, and that the early suspension of the growth of the skull was due to the lack of stimulus of a growing brain inside of it. It will be readily seen how useless section of the skull would be in such cases.

Again, a portion of the brain may be destroyed, and the resulting scar tissue remain as a source of irritation, crippling

the action of the brain as a whole, or provoking those explosions of motor power called convulsions. In such cases the removal of this portion does not restore the lost function, which is dependent on the presence of a certain convolution in a healthy active condition, and the operation is bound to leave a portion of scar tissue which may prove as irritating as the original lesion, insuring a return of spasms sooner or later; often after a long cessation has caused the publication of the case as one of "recovery."

While according due honor to those who boldly seized on this possible remedy for a nearly incurable condition, but who ceased operating when they found that it was not sufficiently successful to justify its continuance, it is deplorable to see others take advantage of the awakened public interest for their own profit. It is certain that surgeons have operated and advised operations where an intelligent study of the case and of the nonsuccess of earlier operators should have deterred them. It is not surprising to see such men give their work all possible publicity. Full descriptions of such operations (and the names of the physicians connected) have appeared in the daily papers, with results so exaggerated that one who would see the same cases after their subsequent removal to an institution for feeble-minded would never recognize them from the description.

The performance of a fruitless operation and useless danger to a human life is always to be deplored.

NOTES AND ABSTRACTS.

THE NATIONAL ASSOCIATION FOR PROMOTING THE WELFARE OF THE FEEBLE-MINDED is the name of an English society formed for the purpose of ameliorating the condition of the feeble-minded and of helping to make them as near self-supporting as possible, or, in the words of the association, "to benefit that large and unhappy class who, without being positively imbecile, are more or less unfit to hold their own in the battle of life."

The society has been in existence about three years now, and numbers among its officers and active workers some of the most prominent people in England: President, the Duchess of Sutherland; treasurer, Richard B. Martin, M. P.; secretary, Miss F. A. Cooper. Among the names on the medical consulting staff are Dr. Fletcher Beach, Dr. Langdon Down, Dr. Shuttleworth, Dr. Francis Warner, Dr. William Hill, Dr. W. Adams Frost and Mrs. Dickinson-Berry, M. D. The chairman of the executive committee is W. H. Dickinson.

The association is not at all antagonistic to any societies and training schools already established for the purpose, but is rather supplementary. It endeavors to coördinate already existing effort for the benefit of the feeble-minded, and, at the same time, to supply what is still wanting. Its principal work is to help those who are beyond school age.

The association has under its direct management four homes. In March, 1897, Alexander House, the home for girls, was opened at Shepherd's Bush, where twelve girls are received, and are taught house and laundry work, needlework,

etc. The boys' home, Ironbridge Farm, situated at Braintree, in Essex, was the first home established in England for feeble-minded boys. It was opened in August, 1897, and has room for twelve boys. They are taught gardening, poultry-rearing, basket-making, etc. The Hendon Homes, for both boys and girls, consist of five well-arranged cottages, standing in their own grounds, with a large and well-appointed steam laundry attached. Three of the cottages are now occupied, one by ten little boys and their matron, another by older girls, while the third accommodates the laundry workers. A lady superintendent has been appointed, and a young lady fully trained in kindergarten methods, lives in the homes, and gives her voluntary services as teacher to the children. The steam laundry, which is in full working order and well staffed, is intended not only to afford a training field for the feeble-minded girls, but to contribute to the support of the homes.

All the homes are managed by a subcommittee of the executive, which meets regularly, and gives personal supervision to the work done in each. Every case admitted is carefully examined by eminent specialists, who devote themselves to this branch of medical science; idiosyncrasies are noted, and directions given for any special treatment that may be required. Imperfect sight and hearing, and other physical defects, which are especially common among the feeble-minded, receive careful treatment.

A subcommittee, including the managers of all but one of the homes started independently for the feeble-minded in England, has been formed to secure unity of action.

The association has opened an office at 49 Victoria street, S. W., London, and engaged a secretary to look after the correspondence and applications for admission to the homes, a great number of which are made yearly.

THE CHARITIES REVIEW requests matter for its columns concerning the feeble-minded, sent to Dr. FitzGerald, Rome, N. Y.

Dr. Charles Kellar writes from Copenhagen that a new journal is to be published for Denmark, Norway and Sweden in the interests of imbeciles, epileptics, deaf mutes and the blind.

THE EMPLOYMENT OF EPILEPTICS.—A vigorous appeal has been made through the lay and medical press of England to the public for funds in support of the National Society for the Employment of Epileptics, which does excellent work, but which has no money. The society supports a colony for epileptics at Chalfont, St. Peter, Buckinghamshire, and hopes, when the various houses are complete, to be able to accommodate some 200 unfortunate persons who will be quite capable of pursuing their trades, though from the nature of their disease they cannot obtain employment under ordinary conditions. The scheme has met with fair financial support, but all the principal contributors have specifically and inexorably made their donations toward the building of new homes, every one of which has involved considerable outlay above the cost of building. The result is that the general funds of the society have been exhausted, and that the recently completed buildings stand empty for lack of furniture. Such a tale as this—and it is the tale almost in his own words of Mr. Montefiore Micholls, the chairman of the committee—may not give everyone a high opinion of the business capacity of the executive, for surely such reckless expenditure of capital should never have been sanctioned; but the fact remains that the aims of the colony are admirable and the scheme one of first-class philanthropic utility, so that it is to be hoped that the public will come speedily to the rescue.—Philadelphia Medical Journal, June 25, 1898.

A WORD OF ACKNOWLEDGMENT.

Mr. Monroe, professor of pedagogy and psychology at the Westfield Normal School, Mass., U. S. A., has kindly consented to lend us his assistance on a subject of importance which we are now preparing upon the education of abnormal children. To his active measures and those of his friends we owe the possession of important documents upon the organization of public schools for arrested and feeble-minded children in the States of Minnesota, Massachusetts, California and Pennsylvania.

We return to him at this place our most sincere thanks, also to Drs. Rogers of Faribault, Fernald of Waverly, and Barr of Elwyn, who have so graciously responded to the request of Professor Monroe in our favor. We will make it a point to publish a detailed account of these documents in the Bulletin of the Pedagogical Club.—Bulletin Pedagogique des Instituteurs et des Institutrices de la Loire-Inferieure, Nantes, May, 1898.

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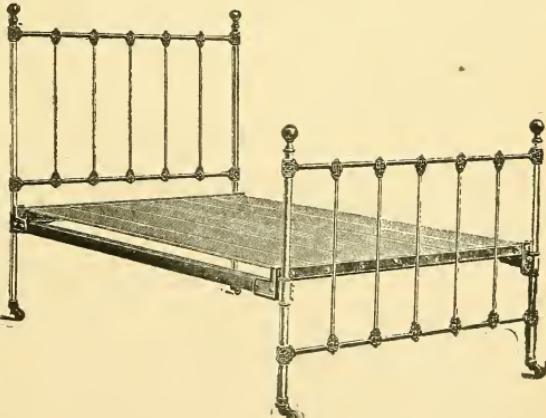
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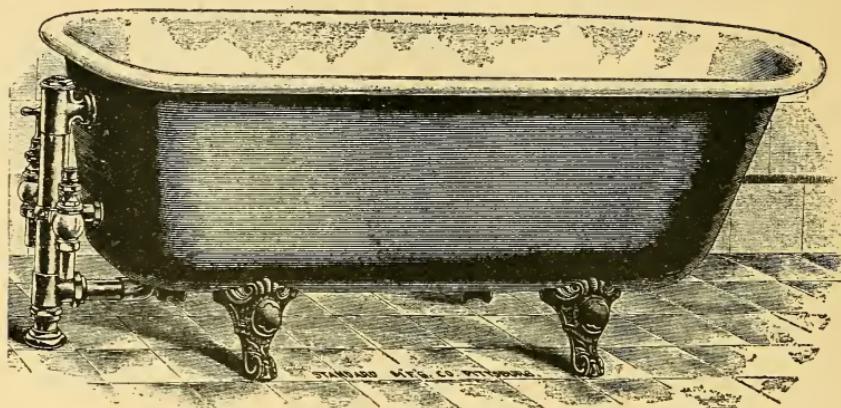


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Hannibal

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NO. 3.

ANTHROPOLOGICAL STUDIES.

(Continued from last issue.)

III. CERTAIN CONDITIONS OF PATIENTS ON AND AFTER ADMISSION.

Before we arrive at the data which I have obtained on the feeble-minded by direct examinations, I should like to introduce a few other case-book records. These records are from the Syracuse state institution; they were made partly in the institution itself, that is, while the patients were under observation, and they reflect a little on the general pathology of the class of beings under consideration. Even here, however, the data will for many reasons be largely incomplete.

(a) The first points inquired into, and on which some data have been already briefly stated, were convulsive disorders and epilepsy in the patients. We obtained the appalling record of convulsive disorders of some kind having been observed in 159, or 16.4 per cent, and fully developed epilepsy in additional sixty-eight, or seven per cent, out of the total number of cases, namely 969, about whom there are any records at all in the case-book. This item alone ought to be subjected to a further thorough investigation.

(b) The next point I tried to ascertain was the proportion of various paralytic disorders of the Syracuse feeble-minded as recorded in the case-books. In the examination of the pa-

tients, I came frequently over cases with paralysis, or more commonly with remnants of same, but I did not try to establish any statistics of these, as it was my purpose to give this item a separate and thorough attention later. The 1,000 perused consecutive case-book records gave us 101, or a little above ten per cent of instances where some paralysis was observed. Among these 101 patients, twenty-one are specified as having had hemiplegia, five paraplegia, three facial paralysis, two paralysis of the tongue, and one each infantile paralysis, "incoördination of movements," ptosis, and a partial paralysis of the arms. In sixty-six cases the nature of the paralysis was not specified. We have no statements whatever about the circumstances under which the various cases of paralysis developed. But we find, in forty cases, a statement of either what was associated with the paralysis, or what was regarded as the cause of the mental defect of the child, and these statements may prove instructive. Thus:

In fifteen instances the same child had also convulsions or epilepsy.

In three instances it had hydrocephalus.

In three instances it had a fall.

In one instance it was an opium fiend, and in two others it received a large amount of opiates.

In one instance the child was an alcoholic.

In two instances the cause of the mental defect is stated to have been measles.

In one instance scarlatina.

In one instance scarlatina and chorea.

In two instances some injury.

In one instance some injury at birth.

In one instance lightning stroke left a paralysis of the tongue.

In one instance cerebro-spinal meningitis.

In one instance operation.

In one instance whooping cough.

In one instance brain disease

And in one each, fever, sickness and teething.

Convulsions and epilepsy are apparently most closely related to the paralytic disorders. The opium and alcohol cases are also remarkable.

(c) Still another important item with the feeble-minded is the speech. It is safe to say that there is no other faculty which is so frequently affected in these patients as the speech is. Its disturbances are most varied, and one would probably find the complete scale of the pathological variations of this function in a single such institution as is the one at Syracuse. A detailed, thorough study of the speech defects of the feeble-minded cannot but prove most fruitful, and ought to be undertaken. The Syracuse case-books alone make a note of some sort of speech defect in 57.2 per cent out of 1,000 consecutive cases, and these are only statements made by the friends of the patient or the authorities who commit him to the asylum. The graver is the imbecility, the more prevalent and graver are the speech disorders.

This finishes the more general part of this report, and we will next proceed to the data obtained by direct examination of the patients.

B.

PHYSICAL EXAMINATIONS.

I. INVESTIGATIONS UPON THE CONDITIONS OF VARIOUS FORMS OF REFLEX ACTION IN THE FEEBLE-MINDED.

(a) Irideal reflexes for light and accommodation:

Tests for the light and accommodation reactions in the feeble-minded and idiots require a great deal of attention, and entail a considerable amount of work. This is particularly true of the test for the reaction of accommodation. In mild cases of feeble-mindedness there is generally no difficulty with the light test, and only so much with the test of accommodation as arises from slow understanding or occasional stubborn-

ness of the patient. But as we progress to the more pronounced cases, the difficulties of the testing, especially for the accommodation, increase, it may be said, in a direct proportion to the gravity of the mental defect, until when we reach the lowest grades of imbeciles, one or both of the tests become frequently impossible. It can be easily appreciated why this should be so. In order to test properly for the reactions of the iris, and particularly for those of accommodation, there is necessary a certain exercise of will, and especially attention, on the part of the subject tested. The will, however, and the power of attention of these patients, are more and more disturbed and defective as we proceed from the lighter to the graver cases among them. In individuals with comparatively but slightly defective mental powers these two qualities, namely, will and attention, are still present in a sufficient strength for our purpose, or can at least be momentarily aroused to such a strength; but in the greater imbeciles will and attention descend to their minimum, and no amount of effort will in some cases succeed to make the patient do, even for the short time required for one or the other of the irideal tests, what the examiner requires from him. In the case of the light-test, this difficulty can often be overcome by a sort of a mechanical testing; that is, closing and opening the patient's eyes, and producing the alteration of the light and shade on the eyes without, or even against, the effort of the subject. The reaction of accommodation, however, cannot be elicited thus mechanically, and it is due to this cause that the results of the tests for this particular reaction must, in many cases of the feeble-minded, and in most of the idiots, be reported as doubtful.

A number of successful tests of accommodation have been effected by taking advantage of the generally highly developed faculty of curiosity of the idiot. Any shining object may suffice to arouse such an amount of attention in the patient as is sufficient for the determination of the condition of the reflex, but a piece of money, especially a gold piece, has been found to be the most successful. A patient who has been

once roused sufficiently for us to obtain the test can generally be roused in a similar manner repeatedly at certain intervals, and thus the condition of his accommodation reflex can be definitely established. Nevertheless, even with this help, the percentage of unascertainable cases is very great; moreover, I am quite certain that at least a portion of the instances among the idiots where we could obtain but a diminished response on accommodation are not cases of real diminution of the nervous reaction, but only due to the low mental power of the subjects tested.

The results of the above examinations on the Syracuse feeble-minded inmates are as follows: The reaction of light could be properly tested for in 149 male and 145 female (approximately in about three out of every five cases); and out of these it was found normal in 140, or ninety-four per cent, of the latter. In nine male (six per cent) and nine female (6.2 per cent) the light reflex was diminished; and in five female (3.4 per cent) it was entirely absent. An increase in the promptness of this reaction, although in a few cases observable, is not fit for a statistical reduction, as we know of no standard of what should, in this direction, be considered abnormal; and besides that the condition is very difficult of proper and uniform appreciation even by a single observer.

It will be noticed from the preceding data that the female patients show a somewhat lower percentage of normal reactions to light; and that, which is more remarkable, and must have a more serious signification than the somewhat smaller percentage of normal reactions in general, there are among the female five cases, against none in the male, of a complete absence of the light reflex. Every one of these five cases was examined by me more than once, and the condition was found stable. The absent reflexes all occurred in older inmates (seventeen years, eighteen, nineteen, twenty). They were associated in all the cases with a very uncertain, or absent, reflex of accommodation. Besides this, in the first case, when I found the light reaction absent, there were augmented patellar

jerks, and an absence of tickling sensation in the axilla; in the second case, the patellar jerks were about normal, but tickling reflexes were absent both on soles and in the axillæ; in the third case patellar jerks were augmented, tickling reflexes of both sole and axillæ absent; in the fourth case, all the reflexes (accommodation, patellæ, soles, axillæ) were absent; in the fifth case, finally, the patellar jerks and axillary sensation being normal, the sensation of tickling on the soles was absent. These conditions show that, in at least four of the five patients in whom the light reflex was absent, there was a much wider spread nervous disturbance. In none of these cases have I been able to detect any marked degree of ataxia, or, in fact, any pronounced, defined disease of the nervous system. There is but little history known about these five cases. Of the first it is known only that she was always mentally defective; in the second case, the feeble-mindedness is stated to date since childhood, but no cause is given; in the third instance, the only information we have is that both the parents are dead; in the fourth case, the same in which all the reflex action which was tested for was found absent, the idiocy existed since birth, and was due to direct heredity; in the fifth case, the history is almost wholly deficient.

The reaction of accommodation could be reliably obtained in only eighty-nine male and ninety-two female cases at the Syracuse state institution, and almost all of these were from among the lighter cases. The reflex was found normal in seventy-six, or 88.54 per cent, of the male, and in eighty-one or eighty-eight per cent, of female. In only one female (the fourth one mentioned above) was the reflex positively absent. The proportion of abnormal to normal reaction of accommodation is again, and that even more than it was in the case of light reaction, nearly equal in the two sexes. The somewhat large percentage of cases with diminished reaction is probably subject to a slight reduction, due to causes explained before.

Taking everything into consideration, the percentage of abnormal reaction of the iris in this class, whose brain is in cer-

tain particular so much affected, appears to me to be quite small, and certainly less than could have been *a priori* expected.

(b) Patellar reflexes or jerks: It was possible to obtain reliable data with respect to this item in 150 male and 190 female cases.*

My method of examination for the patellar jerks differs somewhat from the one generally employed. The subject assumes the regular position, but it is seen to that this is made as comfortable as possible. The examiner, in order to make the test, bends or kneels down, and moves the limb a few times to and fro, to satisfy himself that it hangs perfectly limber. The patient is then directed to close his eyes, in order to diminish a possible inhibition of the nervous reaction. The examiner upon this takes a rather firm hold of the foot of the limb which is to be tested, and holds this foot as far as possible in the line of the curve which it is to describe after the tendon receives the stroke—a line which is at about a right angle with the leg. The examiner then extends the fingers of his hand and stiffens this, and finding the tendon, delivers it a smart blow, of an intensity which is learned to be the most efficient through practice. It is seen to that the tendon patellæ is covered by as little clothing as possible; however, a garment like a thin stocking or a shirt does not interfere with the reaction.

As the knee is struck for the first two or three times, the examiner holds the foot and estimates the amount and the rapidity of the impulse received; both of these are important elements of the knee-jerk. Subsequently, the foot being released, the arc of the jerk can be observed, but I consider this only an accessory of the two previous. The object of holding the foot, as explained before, is to receive the jerk-impulse as much as possible unimpaired. The impulse of the jerk is not the same as the foot-pound-power of the movement of the limb; it is much more the foot-pound-second power. Due to

*A few patients whose cases would not modify the final results have in each instance been excluded in order to preserve round numbers.

this difference, there is by far less variation in the impulse than one would expect if he considered only the various degrees of musculature and strength of the limb of those tested. The normal average of the impulse is learned very soon, and the hand of the examiner appreciates eventually all its variations. The jerk-arc alone is a defective indication of the state of the reflex. I have obtained, and demonstrated to other physicians, large arcs with very weak and even tardy reaction, and reverse. The strength, the promptness, and the arc considered altogether, can alone, I believe, inform us effectually as to the state of the elicited knee reaction.

Whenever the reflex is much diminished, or apparently absent, I use another aid in order to arrive at a correct solution; the subject in such a case is directed to perform a bimanual traction. This method is well known in clinical medicine, but it may be it is not in all cases properly interpreted. We will find frequently that a weak reflex becomes strengthened through directing the patient to draw his hands apart, and that even apparently lost jerks may reappear under the influence. The explanation of these phenomena for myself is this: In making a very strong voluntary effort, the subject diverts certain of his nervous streams of which he may not be conscious, and among these is an inhibitory stream acting on the patellar reaction. We find palpable examples of such effects in the hysterical affections and especially in their treatment; by which, however, I would not imply that those whose knee-jerks improve or reappear on traction are all subject to some sort of hysterical affection.

The results obtained in testing for the patellar reaction may be classified as follows—bearing in mind, of course, that each of the named states includes a small scale of decidedly differing reactions. It should also be stated, that there are no absolute measure-standards for any of the classes which will be named, but only such appreciations as are formed by experience on normal and other individuals.

The first class of patellar reactions includes all those reactions which are so similar to those which we obtain on a

series of healthy and normal individuals that we could but with considerable difficulty separate them from this class; all such reactions should be listed with the normal.

The second class is that of augmented reactions. There are generally both the strength and the rapidity and often also the arc of the jerk augmented; the rapidity of the jerk is the most diagnostic of reactions of this class, its arc the least. The necessary initiative to jerks of this class is generally much smaller than in normal cases.

The third and fourth classes comprise the slightly and the much diminished reactions. The two types are quite easily distinguishable; they may consist simply in a diminished strength and arc of the jerk, but they are also frequently attended by a retardation of the reaction.

A retardation of the patellar reflex may exist alone, but this is rare.

Finally, there are cases, though perhaps far less frequent than is commonly supposed, of an entire absence of the patellar reaction.

A combination of any two of the above may exist in one and the same person.

The inmates of the Syracuse state institution give us the following percentages, according to the above classification:

	Male.	Female.
Normal reaction in both limbs...	85 or 56.7%	110 or 58%
Abnormal reaction in both limbs.	63 or 42%	71 or 37.3%
Augmented reaction in both limbs	22 or 15%	34 or 18%
Slightly diminished reaction in both limbs	23 or 15.3%	24 or 12.6%
Much diminished reaction in both limbs	15 or 10%	10 or 5.2%
Entirely absent reaction in both limbs (even on traction).....	3 or 2%	3 or 1.6%
Slightly diminished, much diminished, and absent reactions, together	41 or 37.3%	37 or 19.5%

It will be noticed that there are some quite interesting differences in the averages between the two sexes. The percentages of all the normal reactions in both limbs together do not vary very markedly in the two sexes; there is on the whole only about 1.5 per cent less of normal patellar reactions in the males than in the females; the real differences manifest themselves in the several classes of abnormal reaction. The augmented reflex is found about three per cent more frequently in the female than in the male feeble-minded. The diminished reactions, on the other hand, and particularly the much diminished, give us a much larger percentage in the male. These differences are particularly apparent when we compare the several items of abnormal reactions in each sex to the whole number of the abnormal patellar reflexes in the same sex. We obtain then the following data:

Augmented reactions in both limbs constitute of the whole number of abnormal reactions in the male thirty-five per cent, in the female forty-eight per cent.

Slightly diminished abnormal reactions in the male 36.5 per cent, in the female 33.8 per cent.

Much diminished abnormal reactions in the male 23.8 per cent, in the female fourteen per cent.

These figures show that, whatever may be the real causes of the augmented and of the diminished patellar reactions, the former are more frequent in the female, and the latter more frequent in the male feeble-minded.

Besides the cases of abnormal reaction in both limbs, we have also a certain number of cases in each sex, in which one limb shows a different reaction from the other. No cases of plainly visible paralysis of the lower limbs are among these, for all such were eliminated from examination, or from the records; nevertheless the possibility that some of the patients from this number might have in past suffered from some sort of paralysis of the lower extremities, cannot be excluded.

There were found but two cases of unsymmetrical patellar reaction among the male, but nine among the female patients. The combinations were as follows:

- Male (1) Left normal, right augmented.
(2) Right normal, left slightly diminished.
- Female (1) Right normal, left much diminished.
(2) Right normal, left much diminished.
(3) Left normal, right much diminished.
(4) Left normal, right slightly diminished.
(5) Left normal, right slightly diminished.
(6) Left normal, right augmented.
(7) Right normal, left augmented.
(8) Left augmented, right slightly diminished.
(9) Right augmented, left slightly diminished.

It will be seen that in most of the cases one of the limbs gives a normal reaction; this, I think, points for the most part to traces of some unilateral nervous affection.

The absence of both patellar reflexes was found in the following persons:

- Male (1) A boy of nine; feeble-minded since infancy; stated cause, "heredity;" light reaction normal, reaction to accommodation, doubtful; tickling sensations in axillæ and soles decidedly diminished; no change in the absence of the patellar reaction on traction.
- (2) A boy of fifteen; stated as feeble-minded since early childhood, without a known cause; subject to epileptic fits; light diminished; accommodation doubtful; axillæ and soles about normal; no change on traction.
- (3) A young man of twenty-one; very little history; other reflexes normal; axillary tickling sensation absent; on traction some vestige of the patellar reflexes reappears.

- Female (1) A girl of eight; no reliable history; all other reflexes absent; (this girl was not among the 150 whose statistics were given in the section on eye-reflexes); no change on traction.
- (2) This subject is the same as referred to under eye-reflexes; no change on traction.
- (3) A woman of forty-four; no history; light and accommodation reflexes diminished; axillary sensation of tickling lost, on soles normal; no change on traction.

It may be of some value to state in this place in how large a percentage of "much diminished" and "absent" patellar reactions a change *is* produced on a forcible traction of the hands by the patient. If there is a change in the reflex it is always for the better. Out of eighteen cases of diminished and absent patellar reaction in the male, in five, or about twenty-eight per cent, a change occurred; out of thirteen females, with a similar kind of reaction, thus tested, a change took place in three, or twenty-three per cent. The changes were as follows:

Originally.	Became on traction.
Male.	
1 Much diminished	Slightly diminished
2 Much diminished	About normal
3 Much diminished	Slightly diminished
4 Much diminished	Slightly diminished
5 Absent.....	Much diminished
Female.	
1 Much diminished	Slightly diminished
2 Much diminished	Slightly diminished
3 Much diminished	Slightly diminished

The change, it will be noticed from this table, is seldom great, and in consequence it may be assumed that in the majority of cases where the patellar reflex is much diminished, or apparently absent, with the ordinary test, that a certain amount of abnormal condition will be found to persist whatever other tests may be applied to the tendon.

Other forms of patellar reaction besides the diminished undergo certain changes when a forcible traction is employed, but I am not yet prepared to definitely outline these changes.

The whole percentage of abnormal patellar reactions in the feeble-minded is beyond question very large. Most of the cases here recorded were children, in whom all the reflexes may be expected to be near the maximum of normal; nevertheless the percentage of abnormal reactions here obtained are not exceeded except by the classes of dementes, of old epileptics and that of still further gone idiots themselves. This condition of patellar reaction in the feeble-minded and idiots demonstrates alone how frequently the innate or acquired disorder extends beyond the purely mental sphere of the brain into the general nervous system. Idiocy is much more than an affection of only the highest centers of the brain.

We may inquire here what influence has the age of the feeble-minded on the patellar reaction? This question can be best demonstrated by the following table; nevertheless it should be borne in mind, first, that we have here no really old subjects (our oldest case not reaching fifty), and, second, that the older inmates of the Syracuse institution almost without an exception consist of the lightest cases, a number of the more severe ones dying early, and many others, on growing more idiotic, being removed to other institutions. The table presents at the same time the influences of age on the reaction of light and accommodation, which it was thought best to show in this connection.

	LIGHT.			ACCOMMODATION.		
	Number Examined.	Normal.	Abnormal.	Number Examined.	Normal	Abnormal.
		Per Cent.	Per Cent.		Per C'nt	Per Cent.
Male up to 15 years	84	97.4	2.6	55	96.4	3.6
Male 15 to 32 years	64	89.	11.	34	79.4	20.6
Male 32 to 39 years	2 both cases		0.	1	0.	100.
Female up to 15 yrs.	51	92.	8.	28	92.9	7.1
Female 15 to 30 yrs.	100	91.	9.	63	87.3	12.7
Female 30 to 47 yrs.	21	85.7	14.3	9	66.7	33.3

PATELLÆ.

	Number Examined.	Normal.	Abnormal.	Augmented.	Slight Dimins.	Much Dimins.
		Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Up to 15 years...	84	64.3	35.7	8.3	20.	6.
15 to 32 years...	64	51.6	48.4	22.	11.	11.
32 to 39 years...	2	.....	both cases	50.	.....	50.
Up to 15 years...	54	50.	50.	18.5	20.4	7.4
15 to 30 years...	112	62.5	37.5	15.2	13.4	5.3
30 to 47 years...	24	62.5	37.5	25.	8.3	4.2

The above table illustrates in very brief the following points in particular:

The conditions of the reflexes of light and accommodation tend in both sexes of the feeble-minded to a progressive aggravation with age; the aggravation is more rapid in the male.

The condition of patellar reaction in the feeble-minded tends equally to a progressive aggravation, but this is far more marked in the male than in the female sex.

The aggravation is expressed both in the height of the percentage of abnormal reaction and in the gravity of the disorder of same. In the male children below fifteen, the greatest

number of abnormalities of the patellar reaction consists in a slight diminution; as the patients advance in age, the slightly diminished instances of the reflex become much more rare, the much diminished and augmented reflexes much more frequent. In the female feeble-minded it is only the augmentation of the reaction which shows a marked percentage of increase after thirty.

These conditions indicate, I believe, two facts: The first is, that the disorders of the nervous system in the feeble-minded are more or less progressive with their age; and second, the augmented reaction is apparently a symptom of considerable pathognomonic significance, and stands about on a par with the much diminished reflex.

In connection with the patellar reaction a test for clonus was made in each case. I test for the clonus in the same position as for the patellar reflex, grasping the patient's knee firmly above the knee, and holding the fore part of the foot; flex this briskly two or three times (not over-forcibly), and as much as possible in the axis of the patient's limb. All of the points mentioned here are of considerable importance for the proper testing of the foot-clonus. Clonus is generally found in subjects who, at the same time, show augmented patellar reaction. However, as I mentioned above, I have tested all the patients examined for the clonus, and as a result I have found this condition several times also in connection with other forms of patellar reaction than the augmented. I can speak of a similar experience among the insane and other abnormal classes of individuals.

The entire number of instances of clonus in both limbs from among the feeble-minded of the Syracuse State Institution is as follows: It was obtained in both limbs in sixteen, or 10.3 per cent of males, and in twenty-one, or eleven per cent, of females examined. The difference in the two sexes is insignificant. In one limb only clonus was found in one male,

and that in a limb whose patellar reaction was normal, the same reaction in the other limb being diminished.

The instances of clonus in both limbs occurred in the following relation to the patellar reflexes in the same individuals:

MALE.	Per Cent of the Total Cases of Clonus.	Per Cent of Reaction.
Clonus with augmented patel. reaction in 12.....	or 75.	or 54.5
Clonus with normal patel. reaction in 3.....	or 18.7	or 3.5
Clonus with somewhat diminished reaction in 1...	or 6.2	or 4.3
FEMALE.		
Clonus with augmented patel. reaction in 17.....	or 81	or 50.
Clonus with normal patel. reaction in 4.....	or 19	or 3.
Clonus with somewhat diminished reaction in 0...	0	0.6

According to these figures, foot-clonus occurs in the feeble-minded, associated most frequently (in fact, more than four times as frequently as with any other form) with the augmented patellar reaction. This shows beyond a doubt that the causes of both of the phenomena are closely related. About twenty per cent of cases of clonus, however, where it was found associated with a normal, or even with a diminished, patellar reaction, render it clear that the causes of clonus may be present independently of those which cause the augmented patellar reaction. That the two conditions, namely, the foot-clonus and the augmented patellar reaction, are distinct, although frequently connected, is further shown by the considerable number of cases of augmented patellar reflex without a vestige of clonus (ten, or forty-five per cent, in the male, and seventeen, or fifty per cent, in the female). I could cite as an additional proof of the difference of the two phenomena several cases where we have found, in some of the hospitals for the insane, cases of clonus with much diminished, and in one instance, that of a dement in the Kings Park State Hospital,

clonus with an entirely absent patellar reflex. We also found some clonus with absent knee-jerks with Dr. Ch. Bernstein, in a twenty-five-year-old idiot in the Rome Custodial Asylum.

The condition of foot-clonus is apparently not peculiar to any age. It was found in those up to fifteen—male, in 9.5 per cent; female, in thirteen per cent. Fifteen to thirty—male, in 11.3 per cent; female, in 9.8 per cent. Above thirty (one out of four cases), female, in 12.5 per cent.

The differences in the percentage are too small, I think, to denote any influence of age on the frequency of clonus. This fact demonstrates also the distinct nature of the clonus phenomenon, for were it not distinct, it would be more affected, together with the patellar reflexes, as the patients grow older.

In connection with the subject of foot-clonus I must mention a peculiar nervous phenomenon which I have found in only one of the Syracuse inmates, but with which I have since met in several instances among other patients. This condition occurred in a boy of about twelve years. It was developed during the testing for the ankle-clonus. On flexing the foot in this case, as usual, the foot itself stayed quiet, but there were a series of jerks imparted to my hand proceeding from the whole limb, a series of impulses produced by convulsive contraction of the quadriceps. The impulses themselves may be said to have differed from those of ankle-clonus only in size, being larger, and in frequency being slightly slower. The patient's will had no effect on these jerks, and they caused him a somewhat unpleasant sensation. I have encountered the same condition since in one or two epileptics and one insane. The patellar reflexes were, in every one of these cases, augmented, and sometimes the test for these was sufficient, the foot being held, to arouse the thigh-jerking. It seems to me we have to deal here with a distinct form of clonus; however, I should not like to express myself definitely before being able to give this condition a closer and more thorough attention. And I have come across still another

form of clonus during my examinations, and that is one elicited by tickling the soles of the patient's feet.

To resume, ankle-clonus among the feeble-minded is frequent. Augmented patellar reaction, we have seen, is still more frequent in the same class. These phenomena are closely related, although distinct from each other. The pathological causes which give rise to one or both are probably multiform. It would seem, however, that their immediate cause must be more or less of one character, and that this cause is a condition of an increased irritability and a decreased control of some or all of those nervous centers, which otherwise direct the normal muscular action in the anterior muscles of the thigh and the posterior muscles of the leg. It is this increased nervous irritability and lessened nervous control, or inhibition, which are frequent, from whatever causes they may originate, in the feeble-minded. This is probably as far as we can go with an effort at an explanation of the above phenomena at present.

(c) Tickling sensations and reflexes of the axillæ and of the soles:

The physiology of tickling sensations and reflexes has not as yet, to my knowledge and means of information, been definitely established; but it is generally held that these sensations are produced by certain forms of stimulation of the end-organs of the sensory nerves (v. Landois & Sterling, *Human Phys.* "Spinal Reflexes"). There is probably no part of the skin and perhaps no part of the mucous membranes, whereon the proper stimulation could not produce some sort of a pleasurable sensation, and pleasurable sensations are in all probability attendants of the first, that is the lowest, or weakest, forms of reflexes. If the pleasurable stimulation is continued for a long time, or increased in intensity, our sensations change. In some parts (conjunctiva, skin in some places, the mucous membrane of the mouth and other parts), the stimulus being continued or increased, the pleasure sensations pass

gradually into the sensations of discomfort, or even pain, and we willingly endeavor to remove the part from the stimulus; there may take place at the same time certain irregular reflex contractions in or near the part thus overstimulated. But there are other parts of the body, as the soles of the feet, the axillæ, the mucous membranes of the nose and the throat, and above all the genital organs, where a continued and at first only ordinarily pleasurable stimulation will have as a consequence, when the pleasure sensations have reached their height, not discomfort or pain, but a more or less complex muscular, involuntary reaction or reflex. In the case of pleasurable sensation alone, we had a relaxation of some of the muscles, particularly of those of the blood vessels of the part stimulated, although all the muscles of the part may become relaxed. In the case of pain a contraction of the muscles of the blood vessels of the part concerned occurs, and this may be attended with contractions of other muscles of the same part of the body. But in the last-mentioned instance, in the case where the sensations rise on repeated stimulations particularly to what is termed tickling sensation, there takes place a definite combination of muscular action. These actions differ according to the part concerned, but remain the same in one and the same part. They involve without or even against the will of the individual, muscles of all varieties; and the whole reflex action in these cases seems to have a definite and macroscopical purpose, which varies with every one of the parts which can be thus affected. It is to this category of phenomena that we should reserve the terms of tickling sensations and reflexes. Commonly, however, the term tickling is applied principally to the sensations which certain forms of stimulation evolve in the soles and in the axillæ.

Tickling sensations and reflexes should in health be present in every part of a person in which part they occur in the majority of individuals of similar age, sex, and race of people. (Occasionally a sensation of this order may be found, or may

under circumstances develop for a time, in an unusual part of the body; but these are only infrequent exceptions). An absence of a tickling sensation in such a part of the body as just specified, tested for under the proper circumstances and in the proper way, cannot but denote an abnormal condition somewhere in the nervous apparatus of the person tested. A far greater series of such failures in one class of persons than in another might prove a clinical fact of a certain value, and it was with the intention of throwing some light on this question in the case of the feeble-minded, that the examinations as to the tickling sensations and reflexes of the soles and of the axillæ were undertaken.

There are certain facts connected with the above sensations and reflexes which it will be well to mention before we give the data themselves.

In the first place, there are certain difficulties about the examination. In testing for the condition of the soles, we should take the patient as much as possible unaware. The foot of the patient should be washed and dry; it may be covered with a thin stocking, for this apparently does not interfere at all, when tight, with the stimulation; and the foot should not be cold, but near the temperature of the examining hand, so that temperature effects on the skin are eliminated.

The best instruments to test for tickling on the soles or in the axillæ are the fingers; when properly used, they are superior to all feathers, brushes or other implements.

The foot should be held by one hand of the examiner above the ankles, which will enable him to perceive the slightest reflex retraction of the tendons. For the test itself, a rapid vibratory movement of the fingers should be acquired. The subject should be comfortably seated, or lie on the bed. The testing must be done gently, and for not less than ten seconds on one foot. The greatest sensitiveness of the sole will almost always be found in the middle, in the instep, but the skin over the balls of the feet should also be tested, for occasion-

ally this will show the maximum, or the only response. If any abnormal condition is found at first, the sensation should be retested after a few minutes.

The subject should not be asked about his sensation, as he sometimes either could not tell us, or might deceive us. We can inquire, however, in case of an apparently absent reflex, what is the patient's experience with regard to tickling at other times and under other circumstances. As a rule, in an individual with normal reflexes, these can be always so obtained by the examiner, if his methods are proper.

The scale by which we can judge of the condition of the tickling reflexes, and particularly of those of the soles, lies, it may be said, almost wholly within our hands. In a case of normal sensation and reaction, we will see at first the toes and then the foot contract, or alternately contract and extend, and then follow a small series of moderate retraction of the leg. If the reaction is diminished, only the toes will contract or extend a little, and we will feel in the hand with which we hold the limb of the subject a small play of the tendons. In the "absent" case, we receive, on repeated tests, no retraction, no play of tendons, no movements. Should the subject endeavor to willfully modify the reflexes, we can generally perceive his efforts. In augmented reaction of the soles, our slightest touch will produce a reflex, or the touch cannot even be tolerated. The reflex is exaggerated; there are not only distortions of the foot, but retraction of the whole lower limb, and sometimes movements of the whole body.

Sole-reactions do occasionally differ on the two sides. Sometimes a little variety of movements is needed to arouse the tickling. Finally, the tickling sensation may be entirely absent, or again much increased, without the pure tactile sensation, and the temperature and pressure senses being much altered.

In the axilla, the conditions of the testing differ to a certain extent from the preceding. There is great difficulty of testing

for this reflex in women—on account of their emotion, on account of their greater adipose layers in these regions, and finally on account of a sort of inefficiency which arises out of the feelings of the operator himself. Corsets and tight dresses are still other sources of evil, though fortunately not so frequent in the inmates of state institutions. Due to all these reasons, the data regarding the axillary reflexes on females over fifteen years of age should not be taken except with a considerable grain of allowance. The data on children of both sexes and on men, on the other hand, are entirely reliable.

The state of the reflex here again is judged from the rapidity and extent of movements performed, without willful exaggeration by the subject. The examiner learns very rapidly what is the healthy average, and above and below this he records only decided differences.

The whole sides of the chest should be tested, and the fingers should play on them gently and rapidly. The axillary tickling sensation is not strictly confined to the arm-pits alone, and it is not only superficial, as in the case of the soles, but can be elicited also deeper, and hence with our finger movements we must associate a certain amount of pressure. The proper manipulation and the proper pressure are acquired by experience.

So much having been explained, the following data, obtained on the Syracuse feeble-minded children, can be better appreciated.

The reaction of the soles was normal in seventy-five out of 150 boys, who could be properly tested for same, or in exactly fifty per cent; and in seventy-four out of 187 girls, which is in only 39.6 per cent. In fifty per cent of the male and 60.4 of the female feeble-minded the reaction was decidedly in some way abnormal which are certainly very considerable proportions. These figures, it should be stated here, would appear somewhat less if we could compare them with the condition of the same reaction on average people, for we meet with a certain

percentage of abnormal sole reflex in the apparently healthy, especially in women; such comparison, however, cannot be given before we are ready to publish the results of similar investigations from all the state hospitals. When an abnormal condition of the sole-reaction is met with among the apparently healthy, it is almost as a rule in a person who has undergone some serious infantile or later disease, mostly, it seems, scarlet fever or typhoid.

The abnormal reflexes were divided as follows: Overacute in one, or 0.67 per cent, of male, and in four, or 2.1 per cent, of female; markedly diminished in forty, or twenty-seven per cent, of male, and thirty-eight, or 20.3 per cent, of female; and entirely absent in thirty-four, or 22.7 per cent, of male, and seventy-one, or thirty-eight per cent, of female.

The female patients, it will be noticed, show, notwithstanding their more tender skin, a decidedly worse state of the sole-reactions. The same fact can be observed, only on a much smaller scale, in the comparatively healthy classes of people. It is possible that woman's sole is naturally less sensible to tickling.

The axillary reaction was found abnormal in seventy-one, or forty-eight per cent, out of the 148 boys, and in 109, or slightly less than sixty per cent, out of the 184 girls, who could be properly examined for these sensations. These percentages are very close to those obtained with the sole-reaction, showing that the causes of the abnormality of the two phenomena amount in this class of patients to almost the same proportions. As to the particular kinds of abnormal axillary reaction, we have the following:

The reflex was markedly diminished.	Absent. Per Cent.	Overacute. Per Cent.
In males, in 25.7 per cent	22.3	.0
In females, in 14.7 per cent.....	44.6	0.5

The influence of age on the sole and axillary reflexes in the feeble-minded is decided, as will be seen from the following table. We have not only an increase of all the abnormal reactions together with the age among these patients, but the table shows clearly that we have also a rapid increase of the greater over the lesser disturbances of the two reflexes.

SOLES.

	Normal.	Abnormal.	Diminished.	Absent.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Male, up to 15.....	58.3	41.7	28.6	13.1
Male, 15 to 32.....	39.7	60.3	28.6	30.1
Male, 32 and above.....	0.	100.	0.	100.
Female, up to 15.....	57.	43.	17.0	24.5
Female, 15 to 30.....	31.8	68.2	21.8	43.6
Female, above 30.....	37.5	62.5	20.8	41.7

AXILLÆ.

Male, up to 15.....	57.1	42.9	30.	12.
Male, 15 to 32.....	46.	57.	17.6	36.5
Male, 32 and above.....	0.	100.	0.	100.
Female, up to 15.....	59.2	40.8	13.	27.8
Female, 15 to 30.....	37.4	62.6	17.7	44.8
Female, above 30.....	13.	87.	4.3	82.6

The above table demonstrates again, besides what has been mentioned already, that in the feeble-minded, there being present considerable nervous disturbances from a very early age, those disturbances increase and aggravate with the age of the patients. The disorders which have originally given rise to the most pronounced symptom of these cases, namely, to a mental defect of various depth, these disorders have not ceased, at least, in many cases, with the establishment of the mental defect of the subject. In many cases there is a more or less slow and insidious continuation of the degenerative processes in the nervous system of the patient. The physician has here to deal with a progressive, not a stable

process, and he may possibly find in the above data some indications as to the treatment of this important class of patients, namely, the imbeciles. It is self-evident from the above, that a successful therapy of this class of patients, whatever degree of perfection such a therapy may ever reach, will be always directly more effective in proportion to the age of the individual at which instituted. This conclusion should be regarded as one of the main points of this series of investigations on the feeble-minded.

There are remaining a few interesting particulars about the sole and axillary reactions.

In three cases, one male (sixteen years) and two females (twelve and sixteen years), the sole-reflexes were found decidedly and persistently different on the two sides. In the boy, the left reaction was normal, the right absent; no corresponding unilaterality of other reflexes. In one girl (sixteen years) the right sole was normal, the left much diminished; other reflexes even. In the last girl, the left sole was normal, the right absent; in the same patient the right patellar reaction was normal, while the left was much diminished. These cases show that there is a possibility, though the occurrence is very rare, of an affection of the tickling reflex arc on one side only.

Finally, we have the following data as to the conjoint absence of the plantar and axillary reflexes. I have arranged these also with relation to the age of the patients, which arrangement adds, it will be seen, a little broader interest to the table.

Both reaction, plantar and axillary were absent in the following proportion of the whole number of cases between the ages stated:

Males.		Females.	
	Per Cent.		Per Cent.
Up to 15	7.1	Up to 15.....	18.5
15 to 32.....	20.3	15 to 30.....	32.1
Above 32 in both cases .....	.....	Above 30.....	37.5
Whole per cent.....	14.	Whole per cent.....	29.

Both sexes aggravate with age; the female constantly preponderate over the male.

We have one more set of data to finish with the consideration of reflexes; these data concern certain associations of normal and abnormal reactions.

All the reflexes (light, accommodation, patellar, plantar and axillary) were normal in eighteen, or twelve per cent, males, and in fifteen, or 7.9 per cent, females.

The light and accommodation reactions were normal with an abnormal patellar reaction in the same subject, in thirty out of eighty-nine cases where all these reflexes could be ascertained in the male, or in 33.5 per cent, and in thirty-three out of 110 females, or in thirty per cent.

The light and accommodation reflexes were both abnormal, with normal patellar reflexes in two males and in three females. The conditions of light and accommodation reactions were in these cases as follows: Male, (1) light diminished, accommodation unascertainable; (2) light and accommodation both diminished; female, (1) light absent, accommodation unascertainable; (2) light diminished, accommodation doubtful. The light reaction alone was abnormal, in subjects with normal knee-jerks, in two males (in both diminished), and in six females (in one absent and in five diminished).

Abnormal patellar with normal light reaction, other reflexes not considered, was present in 50.7 per cent of the male and in 62.1 per cent of the females.

Finally, light, accommodation and patellar reflexes normal, with abnormal reaction of either the soles or the axillæ, were

found in 32.6 per cent of the male and in 36.4 per cent of the female imbeciles, in whom all these reflexes could be properly tested.

All these figures go to prove the possibility of an independent affection of any of the reflex arcs examined, and, further, the possibility of any combination of affection of these arcs. The light and patellar reactions show more independency than is to them probably generally acceded.

In conclusion, we may say to have found that all reflex action in the feeble-minded suffers considerably and progressively with the age of the patients; that the light-reflex is the least affected in this class of individuals; but that imbecility does not seem to be characterized by any specific reflex abnormality. In consequence, these reflex disorders in the feeble-minded do not express any specialized affection, but a something which affects more or less the whole nervous system in general. In face of such facts we should not accept the "feeble-mindedness" or "idiocy" in most cases for more than one of the symptoms, perhaps the most apparent symptom, of a process, in which participates in various degrees and ways the whole nervous system.

II. EXAMINATION OF THE MOUTH STRUCTURES.

(a) Dentition: The examination for this item is rather difficult in a class of which such a large proportion are children, as in this case; nevertheless, with considerable care some interesting results were arrived at. In order to avoid as much as possible an error in the following statements, all in any way uncertain cases were excluded from consideration. The conditions found will be best given according to the ages of the patients.

MALE.

	Number of Cases.	Less than 24 of 2d teeth.	24	26	28	29	30	31	32	Wisdom Teeth appear.	Dentition.
Up to 10 years.....	22	1	4	....	....	....	....	....	....	....	17
10 to 15 years.....	58	8	4	20	....	....	....	....	....	....	26
15 to 20 years.....	51	1	3	31	1	1	1	1	....	3	13
20 to 25 years.....	18	....	....	4	....	1	1	4	....	7	8
25 to 30 years.....	4	....	....	....	....	....	1	1	2	....	2
Above 30 years	7	....	....	1	....	....	2	2	....	....	....

FEMALE.

Up to 10 years.....	15	3	2	....	1	....	....	....	....	....	9
10 to 15 years.....	41	1	4	4	22	....	....	....	....	....	10
15 to 20 years.....	49	....	1	6	26	....	2	1	5	8	8
20 to 25 years.....	38	....	....	1	5	2	7	2	13	24	8
25 to 30 years.....	25	....	....	1	4	....	1	1	9	11	9
30 years and above.....	12	....	....	....	1	....	....	2	2	....	9

The eruption of second teeth in healthy children takes place, according to Landois & Sterling,* in the following manner:

Incisors, seven to eight years; bicuspids, nine to ten years; canines, eleven to twelve years; and molars, at six, twelve to thirteen, and seventeen to twenty-five.

According to my experience with healthy Americans, the above periods for the eruption of the incisors and of the canines should each begin about a year earlier, while the beginning of the eruption of the third molars occurs somewhat later. If we compare with these data the dentition in the feeble-minded as given above, we find signs of a considerable retardation in this class. Out of thirty-eight males between fifteen and twenty years of age, only three, and out of forty-one females of the same age, only eight, were found with

*Landois & Sterling; Text-book of Human Physiology, 4th Edition, p. 271.

any wisdom teeth, while in sixty-eight, or eighty-six per cent of the combined number, there have appeared as yet no wisdom teeth whatever. The earliest age at which any of the third molars made its appearance was fifteen years in the male and fifteen years in the female; before eighteen, two teeth have appeared only in two instances in the male and in three cases in the female. On the other hand, we have in quite a large number of instances the wisdom teeth not appearing until after thirty.

Occasionally other teeth were found wanting besides the molars. The record of these instances is as follows:

- In a boy of fourteen, there have never appeared both lower and the right upper second incisors.
- In a boy of fifteen, there has never appeared the left lower second incisor.
- In a boy of fifteen, there have never appeared both second upper incisors.
- In a boy of sixteen, there has never appeared the right upper canine.
- In a girl of eight, there have never appeared the second bicuspid.
- In a girl of nine, there have never appeared the second bicuspid.
- In a girl of eleven, there have never appeared both second upper incisors.
- In a girl of eleven, there have never appeared both second upper bicuspids.
- In a girl of twelve, there have never appeared both second upper incisors.
- In a girl of thirteen, there has never appeared the right upper canine.
- In a girl of eighteen, there has never appeared the right upper second incisor.
- In a girl of nineteen, there has never appeared the right upper second incisor.

The utmost care was taken, I hardly need to state, not to include among these data any case wherein a tooth might have been present and was lost. From the greater uncertainty as to this point in older patients, I have not taken into consideration in any cases over twenty the want of other teeth than the molars. The frequency of instances where some tooth or teeth have not yet appeared in the feeble-minded below twenty, is considerably in excess to what I have found lately on a large series of comparatively normal children in the New York Juvenile Asylum.

Of supernumerary teeth I have found only one example—two extra lower incisors in a boy of ten. Supernumerary teeth are very frequently but remnants of the first dentition, and I am not sure if that was not the case with this patient.

(b) Denture:

The character of the teeth will be considered from two standpoints, and that is, first, from the purely morphological view, and second, with view as to the durability of the teeth in the feeble-minded as compared with that in the healthy.

The form of teeth is comparatively simple and cannot show any great scope of variations. The main deviations from the average can be observed in the size of the teeth; we meet occasionally with teeth which are excessively small, or again with such which are much larger than the usual. The diminutive character, when met with, applies generally to the whole denture, while the great teeth are more or less isolated, or in pairs.

The very small teeth are often very healthy, and they are generally, at least in front, surrounded by free spaces or diastemata; the mouths they occur in are most frequently well formed and spacious, and their owners are often robust and muscular, almost never thin and frail. This variety of teeth is quite frequent among the criminals and the criminal insane, rare among normal people. Children of the same family are liable to show this character in common. The signification of diminutive teeth is doubtful. We could, perhaps, refer the

phenomenon to atavism, as we find teeth of similar nature in the lower monkeys; the teeth of the anthropoids, however, are large, and very small teeth in low human races are a rare exception. Even with much less right can we ascribe the diminutive teeth to degeneration, and there probably rests only one explanation for same, which is organic variation, a process which receives, I believe, too little of our attention.

Besides the cases of genuine diminutive denture, we find occasionally one or a pair of teeth of a very small size. The teeth exclusively thus affected are the second incisors, especially those of the upper jaw, the second bicuspid, and the third molars. In these cases the process which causes the smallness is undoubtedly dental degeneration, and these instances are the precursors of the future evolutive changes in our dentition in general.

The very large teeth are more rare than the preceding. The excess in size manifests itself mostly in the upper incisors, especially the middle pair, and then in the canines. Excessively large teeth appear mostly in beings of a congenital abnormal physical status. Their cause, it appears to me, is more clearly a milder degree of reversion than anything else.

Very large and very small teeth are never met together in mouths of normal people.

Among the Syracuse feeble-minded, diminutive teeth were met with in five, or 3.1 per cent, of the male, and in seven, or 3.9 per cent, of the female examined. These figures do not constitute any material difference between the two sexes. Among 1,000 children of the New York Juvenile Asylum,* the same condition of teeth was found in only 1.6 per cent of the total, or in 1.47 per cent male and 2.2 per cent female.

Teeth of excessive size were found in four instances among the boys and only one among the girls of the Syracuse asylum. In two out of these five cases it was the middle upper incisors

*The inmates of the New York Juvenile Asylum, to whom we shall have occasion to refer yet more than once, consist mainly of poor, but normal children, with a small admixture of truants or a light grade of young criminals.

which were excessive in size; in two others it was the canines, and in one, the female, it was both, the middle upper incisors and the upper canines.

Two very peculiar forms of teeth were found by me during the examinations, but only one specimen of the one form and two or three of the other. Both these forms deserve to be described in detail, and, as I have been able to ascertain since, they bear a certain relation together.

The first form concerns the canines only, the second almost exclusively the incisors. In the first form the canine is entirely normal, up to its free point; but here, instead of terminating in a more or less pointed, regular summit, we find a curious conformation, which I have endeavored to illustrate with figure 3.

As will be seen from the picture, there is a regular ring-like depression surrounding the tooth near its summit, and above this depression is a nicely formed and not very small triangular tubercle, by which the canine terminates. The effect of the whole is such, as if the enamel tubercle on the top were a separate piece, which has been cemented to the lower point of the tooth. I have not been able to detect as yet to what degree the enamel and the dentine participate on the constriction.

As I have seen this condition since, in eight or nine different persons, it appears with the following characteristics: The tubercles may be of various size, and more or less well defined at their base. They occur mostly, if not always, on the second teeth, only on the canines, and generally either on a pair of these, most frequently the lower, or on all four of the teeth. The attachment of the tubercle to the tooth seems to be very firm, as I have never found it broken off, and I have seen two nice specimens of the condition in adults. The peculiarity occurs in both sexes.

The case among the feeble-minded was that of a girl of fourteen; the tubercles in her case were most typical, and they



Fig. 3.—Canine from I. M., a 14-year old female inmate of the Syracuse State Institution for Feeble-Minded Children.

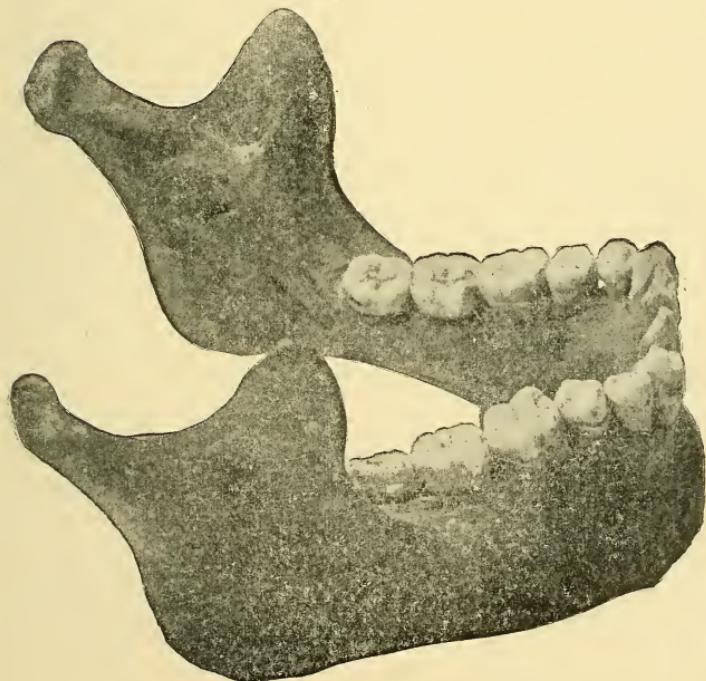


Fig. 4.—The polygonal alveolar arch.

were present on all the four canines; the above figure represents one of these four, which I have extracted.

In almost all cases where I have met with this condition there could be detected in the same person, also, some other constitutional infirmities, denoting disorders of physical evolution or of nutrition during the growth of the being. As we find no similar form of canines in the lower species of mammals, we cannot speak here of reversion. The most plausible explanation of the condition, it seems to me, would be the following:

The ring below the summit of the canines represents a period of constitutional derangement in the person's life, a period of malnutrition, allied to rachitis or some similar process. The tubercles on the summit of the teeth are not new formations, but those parts of the normal teeth which represent those of the original cells of the second canines, which have not been affected by the period of the person's abnormal condition. The lower parts of the canines, below the constriction, are equally parts developed during the individual's normal condition, or during a period of restitution.

The second form of peculiar teeth occurs, as stated already, mostly in the incisors, and that of both jaws; which condition has already received notice by several authors. The incisors present the following aspect: They, as all the other teeth in the same mouth, are more or less of a dirty yellow tinge; their free edges are serrated, or irregular; while the front of the teeth is rough, looks as if entirely denuded of enamel, and shows either one or several rows of dots, or, more commonly, from one to three horizontal grooves. The outer surfaces of the teeth appear, in brief, dirty, and dotted or corrugated, with the dots or grooves still dirtier. The striation is always horizontal and extends generally over the whole anterior plane of the teeth. Occasionally traces of similar corrugation may be noticed as far back as the bicuspids. The canines in these cases show frequently a more or less defined "tubercle" at their

summit. The molars and the bicuspids in these mouths are almost as a rule in bad condition, decayed and much discolored. Teeth of this sort occur again in individuals who show also other traces of some past constitutional disturbance. The first teeth may already be thus affected; indeed, I am not certain whether the condition is not more frequent in the first teeth than in the second. In at least one case I have seen normal second incisors, only distinctly serrated, take the place of corrugated incisors of the first dentition. Cases of this form of teeth are considerably more frequent than those of the canines with tubercles, but their cause is probably very similar, only perhaps somewhat less pronounced, and more prolonged.

Diastemata: By this term we understand all unusual natural spaces between the teeth. In the average mouth, we cannot freely introduce anything of the thickness of an ordinary blotting paper between any two teeth in their natural position; but to this rule there are many exceptions even among the most normal.

The signification of diastemata must be considered in every case separately on the basis of their causes. There are several widely different conditions which will give rise to diastemata. The first of such causes is a smallness of the teeth, with a gum of normal proportions; the second is a large gum, with the teeth of normal size; the third is a congenital want of some teeth; the fourth is an incomplete closure of intermaxillary suture between the two middle incisors, or an oblique, converging downward position of the middle incisors; as the fifth cause of diastemata, finally, we may assume atavism. Occasionally spaces between various teeth will be developed after the neighboring teeth have been extracted; these cases are not diastemata proper.

Diastemata due to the first three causes indicated above, are naturally without much significance; those of the first kind of the fourth variety denote a certain physical retardation, while those of the second kind are a reversive character;

those of the fifth category, however, if ascertained to belong to this, would be indications of considerable more meaning than any of the other varieties. The value of any and all repressive characters found in man lies in the following: The development of every part of the body is fundamentally directed by the nervous centers of the individual, and if the development of the body or any of its parts will not be seriously interfered with by pathological processes of any kind, or by accidents, the evolved parts will exactly correspond to the powers of those basal organic nervous centers. The stability of these parts of the nervous system is very considerable, and they are not easily influenced, as we see by observing the very small effects on the evolution of a being of many maladies and accidents happening through this period. When those centers are influenced, however, the results are as follows: If the result took place in a being during his evolutionary period, there may result modifications of those parts of the individual, which are still undeveloped, on the same principle that a deleterious influence will affect mostly the young, growing branches of a plant or tree, and not the old. If the individual is already fully developed when the blight occurs, the effect will show first in his progeny, in the same way as it would in the seeds of a plant, which itself cannot be furthermore much affected. In both instances just enumerated the progeny will receive a deficiency of some part of its organic nervous centers; and this deficiency will manifest itself during the evolution of the being in some of his organs. This is the whole substance of the so-called signs of degeneration. Now we know that in all nervous centers the parts and consequently the functions last acquired in organic evolution, are always liable to be lost first when a cause is present. The last acquired parts of the human organic nervous centers are naturally those by the acquisition of which he became differentiated into a new species, and it is a smaller or greater part of this his acquisition which under the proper unfavorable circumstances he is liable to lose first. That this does not hap-

pen more often or to a greater extent than it does, proves man's acquisition of the human characteristics to be very stable already, and hence old. When a loss does happen, a sort of a reversion, some sort and degree of libration and activity of a more primitive function, occurs, and such is the signification of all signs of atavism. Of course, these expressions are largely only figurative statements, and do not pretend to represent the real pathological changes which occur in those nervous centers.

Now, as to diastemata of a reverisive character. If we examine large series of inferior species, from the lizards upwards to the anthropoids, we find that the most constant and largest diastemata in all these species are those around the canines. The next most frequent spaces occur between the middle upper incisors. Spaces around other teeth are in most of the animal species, and the more so the higher up we go, but exceptions. If, then, we are to consider any diastemata in the human being as of a reversion, or rather, of a reappearing nature, it should be the diastemata around the canines, or the one between the upper middle incisors, and especially when isolated and not due to a non-appearance of some of the neighboring teeth. That such a space between the teeth is really more significant than others, especially those on the outside of the incisors, can be also adduced from the following: It is quite a common fact of observation and a proven fact of measurements, that the alveolar processes of both jaws tend in the white species to a gradual diminution in length: we see most commonly that our third molars have to be extracted on account of a lack of space. As we go downward from the white man to the inferior human races, and especially to the apes, we find that the alveolar processes constantly proportionately lengthen, and that in almost a direct proportion to the zoological inferiority of the being considered. Spaces appearing around the canines, in a race whose teeth on account of the shortness of the gums, are becoming more and more crowded, cannot but denote a character of the alveolar pro-

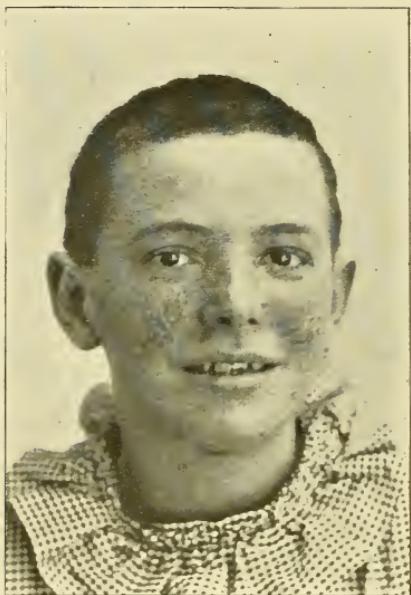
cesses which is not necessarily simian, but decidedly a low human, and that is why particularly natural diastemata around the canines should be considered as signs of inferiority or as a lighter grade of reversion.

In the Syracuse feeble-minded, diastemata of all kinds were found in twenty-eight, or 17.5 per cent, of males, and in thirty-one, or 17.2 per cent, of females. The proportions are remarkably even in the two sexes. As to the varieties of diastemata, considering both sexes together, we obtain the following percentage (with reference to the whole number of both sexes examined):

	Per Cent.
Diastemata between or around one or more of the incisors	14.7
Diastemata around the canines (it is possible that some spaces in front of the canines were included with those recorded "around the incisors")	2.3
Diastemata around other teeth than incisors or canines	1.8

In eight cases, or 2.3 per cent of the whole, the diastemata existed only between the middle two incisors, indicating a more or less simian state, or a more or less incomplete union of the two parts of the alveolar process in the middle. Six of the cases were in the upper jaw and two in the lower.

[TO BE CONTINUED.]



CASE NO. 1.



CASE NO. 2.



CASE NO. 3.

ADENOMA SEBACEUM.

BY

MARTIN W. BARR, M. D.

Chief Physician Pennsylvania Training School for Feeble-Minded Children,
Elwyn, Pa.

Among the diseases peculiar to the feeble-minded and but rarely seen elsewhere, none is more curious than the cutaneous affection commonly called, from a fancied resemblance of configuration, the "butterfly disease," and also variously known as *adenoma sebaceum*, *epithelioma adenoides cysticum*, *naeri vasculaires et papillaires*, *vegetatious vasculaires*. The best description I have met with is that of Crocker, who speaks of it as "A disease composed of neoplastic papules on the face, of congenital origin, but of later development."

According to H. G. Brooke, adenoma sebaceum was first described by Jacquet and Davies in 1887 under the title of "*Hydradenome eruptif*:" Crocker claims that Rayer and Addison and Gull reported the first cases, but that it was not positively recognized as a distinct disease until Balzar, without knowledge of these, verifies their description by a similar diagnosis. We read there was much careful study of the subject without any definite conclusions being reached as to its pathological anatomy and relations, its source and cause of origin, the earliest and latest periods of commencement, its possible modifications macroscopic and microscopic, and the limits of its distribution.

Vidal, Hallopeau, Pringle, S. Makenzie, Caspary and Crocker made further investigations. Shuttleworth and Fletcher Beach, of England, were much interested in the disease; but in all, including my own cases, I cannot find that more than twenty have been studied and reported.

Duhring considers the disease rare and requiring investigation; but Crocker believes it not rare, but that, the subjects often being epileptic, it has therefore, in the hands of neurologists, passed unrecognized, without being referred to dermatologists.

In my experience of over twelve years among the feeble-minded, I have seen but three cases of adenoma sebaceum, one only being an epileptic. The disease is practically confined to the face, occasionally found on the forehead and chin, but generally of central position, the eruption being most abundant on sides of nose and naso-labial folds, where it is in some cases confluent.

The distribution of the lesions is, as a rule, remarkably symmetrical, but Crocker reports one case unilateral; and in one of my own (No. 2) the eruption will be noticed in right frontal region, and not on the left, while it is symmetrical on other parts of the face.

The lesions are roundish convex papules and vary in size, the extremes varying in size from a pin's point to that of a split pea. The majority are of a bright crimson, this color due to minute telangiectatic vessels investing them. Again, they may be slightly colored or translucent and waxy. When the papules are very numerous and thickly grouped, they are apt to assume a cinnamon or brownish tint, occasionally paling on pressure. A few scattered lesions may be present at birth or appear gradually in early childhood, or they may suddenly increase in number, but not in size, at puberty. The disease, once established, is stationary, although the papules occasionally undergo involution, leaving insignificant scars, which in time fade.

All the cases reported, with the exception of two of Crocker's, show mental deficiency; mine were all of low grade.

Crocker cites a case of an exceedingly clever boy of eleven, and also a lady of forty-eight years of age, with intellect above the average.

It is said that other defects of the skin are usually present, especially fibromata in hair follicles, pigmentation, true naeri and warts; but, with the exception of the latter, I have met with none of these, the skin of my patients being perfectly pure.

The diagnosis of adenoma sebaceum is not difficult, although it may be confounded with hidrodenoma, colloid-milium and acne rosacea.

Hidrodenoma is also congenital, but the lesions form irregular groups on trunk, forehead and face, and are not telangiectatic; neither is there mental deficiency.

Colloid-milium is found most frequently in the middle-aged or elderly, and occupies, chiefly, the orbital, temporal and frontal regions. The lesions are few in number, disseminated, discrete, of a pale lemon color, shining, and more translucent than those of adenoma sebaceum.

In acne rosacea we have the intense hyperaemia, the enlarged blood vessels, the peculiar acne papules and pustules. The nose is the region most frequently attacked, but the disease not infrequently spreads over the entire face.

Balzar found in one case of adenoma sebaceum the lesions in the sebaceous glands only, and in another a number of small cysts both in the sebaceous and sweat glands.

Pringle found that the corium was much thickened, and the size of the sebaceous glands, both simple and compound, enlarged.

Crocker, who examined portions of skin from the cheek, forehead and the fibrous lesions of the back, also found the corium thickened; but the most conspicuous feature was the enormous number and size of the sebaceous glands, the upper

half of the corium being studded with rudimentary hair follicles, while there was an unusually large number of sweat coils in the deeper portion, so that there was increased development of all the appendages of the skin situated at different levels. The papillary vessels were conspicuous, and there was moderate increase of the connective tissue. In a single large lesion from the forehead, which clinically looked so different, the most marked distinction was the replacement of the enormous number of hair follicles and sebaceous glands by fibrous tissue, with fragments of hairs and glands imbedded in it. The lesions of the back were centered at the hair follicles, round which dense fibrous tissue was developed in considerable quantity, the lesions being in short follicular fibromatia.

There has been so far as yet no positive response to treatment. The French have experimented with electrolysis, the galvano-cautery and thermo-cautery, but records are still too incomplete for correct data or for proofs that the formation of fresh growth has been permanently checked.

Pollopeau removed some lesions with a curet and by scarification, but they returned in a year. Pringle tried to scoop and bore out nodules, but death intervened before resulting effects were fully tested. Crocker removed some lesions from a lady's face by electro-sis; and also, in some extended cases, he exercised the naso-labial folds on either side of face and forehead, but with only fair results.

My cases are as follows:

Case No. 1. Celia G. —. Low grade imbecile; aged nineteen; hair dark brown; eyes black; sight and hearing good; voice husky, and enunciation defective; very talkative; noisy; indolent; obstinate, and cruel to other children. Began to walk at sixteen months, and reached mental limit at fourteen years. When three years of age was found in a spasm, due, it was thought, to fright at the screams of her drunken father. There has been no return of spasms, but she is extremely nervous.

Given a fair trial in school she was able to learn nothing beyond the simplest manual employment—a little knitting and sewing. Mother sixteen, father twenty-one, at child's birth. Father's family said to be scrofulous and several of its members to have had a "breaking out of the skin like Celia,"—himself a drunkard, and also addicted to the inordinate use of tobacco. The maternal grandmother died a confirmed dipsomaniac, the maternal grandfather of some heart trouble, and the paternal grandfather of apoplexy. But one sister living; and the mother, unwilling to bring other children into the world, separated from her husband.

Plate No. 1 gives a fair idea of the lesions scattered over the face, but chiefly confined to infra-orbital space, or on either side, giving the outline of the extended wings of a butterfly. There are no large sebaceous cysts, the majority of the lesions being of a bright scarlet, shading off to brownish or Indian red.

Case No. 2. John W. —. Idio-imbecile; mute; nineteen years of age; reached mental limit at fourteen; light brown hair; hazel eyes; sight and hearing good; filthy in habits; unable to wash or dress; indeed, incapable of self-help in any way beyond feeding himself with a spoon. Is sluggish in habits. Came from almshouse, and but little is known of family history. The mother, lost sight of for years, is said to have had the same facial disease as the boy. The lesions are scattered over the face thickly, but most prominent over the left forehead, side of face and chin. There are three large waxy spots between the eyes, on the left nose and left infra-orbital space. Two large confluent spots appear on the upper and lower ramus of jaw.

Case No. 3. William S. —. Idio-imbecile; thirteen years old. Is perfectly formed and skin clean, with the exception of three warts on left hand. Light hair; blue eyes; sight, hearing and gait good; slight paralysis on right side; speech imperfect, and vocabulary limited to two or three words. Extremely nervous; unclean in habits; good memory; powers of

imitation good, and has a wonderful talent for music; sits and hums to himself all day long; can catch any tune that he hears but once, and can distinguish between a waltz, a two-step, a schottische and mazourka. Father a machinist and born in Ireland; mother born in England; subject to mild attacks of insanity; paternal grandfather died at forty years of age of gastric fever; paternal grandmother at sixty-five of bronchitis; maternal grandmother living, and was confined in an asylum for a time, and had feeble-minded brother. Has three brothers living, apparently sound and in good health; sister died at six days. Fifth child, born at full term; difficult labor; non-instrumental; nourished by mother, and was apparently a strong babe. Convulsions at six months, continued frequently up to two years of age, since which time there has been no return. The adenoma sebaceum is well marked on face and has been present since birth. The lesions are brownish on nose and over eyes, red on cheeks, small confluent spot telangiectatic on left temple, two confluent spots on left frontal region and large spot on right chin.

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EDITORIAL.

The physiological method of education, of which the illustrious Dr. Seguin was the apostle, if not the creator, has slowly but surely made its way in the pedagogical world. It was practiced in schools for the feeble-minded for many years before educators at large saw its value. Now it is being adopted, in varying degree, in schools of every kind. Bright, progressive teachers from the common schools, especially those who have the primary classes, visit the schools for feeble-minded and get hints and suggestions for their own work.

At a recent county teacher's institute in one of the central states, held in a city which contains one of the progressive schools for feeble-minded, the county superintendent of schools, who had recently inspected the state school, told the teachers not to miss the opportunity to visit that institution. He said: "The primary teachers, especially, will get more good and useful hints that will assist them in their work, from a visit to that school, than they will get anywhere else."

The schools for feeble-minds have led the way in education, and as they develop their custodial departments more and more perfectly, they are leading the way in the permanent care of the degenerates. It is natural and right that we should be pioneers in this work. No class of degenerate members of the human family is so amenable to improvement, is so easily controlled, has within it such possibilities, as the class with which we must deal.

It is true that the bright hopes of the early leaders in our work have not been realized. It is true that we have all, or nearly all, abandoned the idea that a majority of our trained graduates can ever be discharged to take up the responsibilities and duties of life in the great world, unaided and uncontrolled. But it is also true that an increasingly large proportion of them are trained so that they may be useful and practically self-supporting, under friendly control and with wise guidance, in our little world of the institution.

As we demonstrate such possibility, not by fine speeches and papers at the national conference and elsewhere, but by actual work in our institutions, showing practical results in diminution of cost, or improvement of the standard of life at the same cost, and in other familiar ways, and only as we so demonstrate it, shall we be allowed to do the whole work which we see to be so necessary.

Our aim must be the permanent custodial care and control by the mother state, not merely of a few, but of the whole class of idiots and imbeciles. Let us set this before us as the thing to be attained, and realize that our success in developing our children, in the line of self-support, is a most important factor of the problem.

The Massachusetts institution is to try the colony plan on a large scale. The trustees have purchased 1,700 acres of land in a beautiful part of the state. The tract includes seven improved farms with their various buildings and many other pieces of real estate. Beaver Brook, known of Whittier and Emerson, runs through the tract and can be made to furnish power for all the machinery of a large industrial plant, as well as the water supply of the institution. There are beautiful natural features, including two hills, which we should call mountains in the Middle West, since they are over 1,000 feet above sea level. The opportunity for splendid work is magnificent. Dr. Fernald is to be congratulated. Let us hope he will not wear himself out in the task before him, but will be satisfied with doing *one* good man's work daily, instead of *three* men's work as in the past.

The legislature of Indiana will appropriate for two buildings for the feeble-minded at its present session, one to be built this year, a custodial cottage for girls on the home grounds, one for middle grade and upper custodial boys on the colony farm to be built in 1900. The buildings are to be of brick, made in the institution's own brickyard. There is a certain class of feeble-minded boys for whom the hard labor of brick making is a very desirable employment. Ten of this class, with one employe, made and burned 394,000 bricks last season at a cost of \$1.10 per thousand. This year an improved machine will be installed and the output required is about 2,000,000 bricks.

The Indiana legislature has also before it a bill to open the doors of the institution widely enough to admit all imbecile and idiotic females under forty-five. This will probably become law this session, if not, it will certainly be enacted at the session of 1901. The institution is at present very popular in the state, and but for the pressure upon the finances from several institutions for the insane, the new state reformatory and other sources, the extension would be made at the rate of 200 per annum instead of 100 as now contemplated. It seems probable now that the present institution will be increased annually by the addition of about 100 inmates, for some years to come.

It is a little unfortunate that our useful term "Colony" to signify a branch of an institution, situated at a distance from the general buildings, but, under the same superintendency, should be used to mean quite a different kind of plant. In New Jersey this error has been avoided and the new state institution for epileptics is not miscalled a "Colony" as are those at Soneya and Gallipolis, but is correctly designated the New Jersey State Village for Epileptics. Its first annual report shows only a beginning in acquiring land and buildings, the inmates and a maintenance appropriation for them are to come later.

So the new day is dawning. The Idiots, the Imbeciles and the Epileptics are now understood to be proper subjects, as well as the chronic insane, for permanent state care. There are other classes of degenerates still to be provided for. Some of the chronic inebriates and misdemeanants, some of the worst of the utterly hopeless paupers, and a large number of criminals. If the day ever comes—let us say bravely *when* the day comes,—that all, or nearly all, the degenerates are gathered into industrial, celibate communities, how rapidly will the "*White Man's Burden*" of distress, pauperism and disease, which he must be taxed to support, begin to diminish.

IN JAPAN.

To Mr. R. Osuga belongs the honor of the first work for the feeble-minded in Japan, so far as we have any knowledge. Two years ago he made a visit to several American schools for feeble-minded for the purpose of learning the methods used here, and in the fall of 1898 spent several months in study at Cambridge. During his recent visit to America, he called at Elwyn and Faribault.

At present there are ten feeble-minded children under Mr. Osuga's care as a resulting incident of his generous and self-sacrificing work for a number of orphan children. The following is the story in his own words:

"In 1890 there took place at Nagoya, 200 miles south of Tokyo, a great earthquake which destroyed about ten thousand lives and injured about the same number. Naturally, this left a number of children helpless orphans. Always interested in education, I then was suddenly struck by the thought that, if I could gather together these destitute little ones and form them into an orphanage, I could, perhaps, come near to realizing my ideal in Christian education, as they would be absolutely free from the hampering of non-Christian parents or relatives. So I went down to the place of calamity and gathered together some of those poor little ones, brought them back to Tokyo, built a few houses, and thus, began my life with them.

Among my children are a few feeble-minded. They have always been the objects of my special care and training. Having such unfortunate ones among the children under my care, I felt it my highest duty to improve their mental, as well as physical condition, as far as the present stage of human knowledge and discoveries enable us to do so. Thus I have started my new department."

Four of the orphan children are feeble-minded and six feeble-minded day pupils attend this school. Two teachers are employed. The children are employed at feeding silk

worms and making envelopes. It is interesting to note that at the orphanage proper, which is composed of fifty-four children, all girls, 20,000 envelopes are made per day. The manufacture of silk handkerchiefs and artificial flowers for ladies' bonnets are important industries.

"The Church in Japan," Tokyo, for November and December, 1898, publishes a pleasant notice of Mr. Osuga's work. This work is charity of the purest kind, for its author has devoted his own fortune to it, except as charitably disposed people have voluntarily contributed. The Journal wishes Mr. Osuga a hearty God speed in his noble work.

One year ago, the Journal announced the death and published the life of one of the charter members of the Association. It is our painful duty this month to note the passing of Dr. Armstrong, whose portrait appears as the frontispiece of this number, one of the youngest men of the profession. While he unfortunately could not see his way to attend regularly the meetings of the Association, and hence was not well known to all of the members, those who had had the opportunity of knowing him held him in very high esteem for his superior executive ability, his knowledge of details and his excellent judgment, as well as his personal magnanimity. He served as president of the Association in 1891. In administration work he was a strict disciplinarian, his ideas were clear and his plans carried out with the promptness and decision characteristic of a vigorous will.

The following tribute to his memory appeared in the Nebraska State Journal of January 15th:

"The death of Dr. J. T. Armstrong, which was briefly announced in last night's dispatches, occurred after much suffering and a lengthy illness, closing a career which has been one of many vicissitudes, but through and above all of which rose supreme the character of a man above reproach. Dr. Armstrong was never known to turn a deaf ear to one in distress,

and to his generosity many a friend of by-gone years can testify. His best qualities, his many sacrifices and his thorough unselfishness were really only fully known to his most intimate friends. He was not a man who paraded his virtues, but, on the contrary, sought to hide his many generous acts.

"Dr. Armstrong was forty-two years of age the 28th day of last December. He was born in Columbiana county, Ohio. Moving to Iowa he took a collegiate course at Parsons' college. He graduated then from the Iowa state university, from which he entered a medical college at Iowa City, from which he graduated with high honors.

"He was a man with wonderful executive ability, and the opening of the feeble-minded institution, of which he was for years superintendent, and the admission of over one hundred children at once, was conducted as smoothly as though the place had been in operation for years. He remained here until the 2nd of February, 1897, when, by the rule of politics, he was succeeded by Dr. Fall. He was signally successful in his work for the state, every detail of the work being at all times under his direct supervision.

"The deceased was the last member of the Armstrong family, whom a strange fatality has always followed. His father was the only son of the family who attained his majority; the same was true of the doctor and Walter, a son of Mrs. Armstrong, is the last of four children of the family. They each had two children but a few years ago, at close intervals death claimed all but Walter. The doctor's oldest son, in whom his highest hopes were centered, died from the effects of an accident, and his death was a severe blow to his father."

The funeral services were held at 2 o'clock, January 16, 1899, from the Episcopal church at Beatrice, Nebraska, conducted by the Knights Templar, of which the deceased had long been a member. The remains were buried in the new cemetery, where are buried his son and a son of Mrs. Armstrong.

NOTES AND ABSTRACTS.

THE SUCCESSFUL MEDICAL MANAGEMENT OF EPILEPSY
is the title of an article by Dr. C. H. Hughes, of St. Louis, in
the January number of the Alienist and Neurologist, 1899.
The following is the substance of his remarks:

"Every now and then new treatments are announced for this affection, which are only combinations of the old. All of the antispasmodics and various combinations of them have been tried. But to cure epilepsy something more than removal of the spasms is necessary; the causes must be removed, in fact, the victim must be made anew. The trephine, the toxine, ancestral entailments, and present environments are always to be considered, and even hypnotism is not to be ignored.

"To prevent paroxysmal accesses is not necessarily to cure epilepsy. Only nerve building treatment and long continued suppression of paroxysms in every form will give the hope of a cure. Not over 10 per cent will give prolonged appearance of a cure. Treatment should be continued two years after last paroxysm, and even then it is not safe to leave patient without treatment for two years longer. My rule is to maintain the bromide impression by a daily dose of thirty grains of strontium bromide, alternating from time to time with the other bromides, with or without potassium iodide, quinine, arsenic, etc., and with haemo-neural therapy and alvine digestives and laxatives. Suppression of proxysm may bring out epileptic automatism, epileptic mania or insanity. When we can change the brain state, underlying these symptoms, back to the normal, we will have a cure for epilepsy. These facts show the futility of such periodic publications as the Codiae treatment and the Bechterew treatment,—the latest

fad, the results of which are not so good as those of the treatment outlined.

"A good deal of importance should be attached to the auto-toxine theory of the excitation of the paroxysm and to engastric and lower intestinal and septic irritative conditions as causative factors of the paroxysm, but not of the brain state. The reputation of nitrate of silver was undoubtedly due to its power of destroying intestinal toxines. Every form of toxæmia calls for treatment. The alternation of the bromides, the blending of them, the employing of them singly, the immunizing of the *præmae ritæ*, the perfect digestion of its contents, the regulation of the whole organism back into physiological channels of action wherever it has gone awry, constitute the scientific and clinical rationalé of the treatment of this grave disease."

THE SECOND CONFERENCE OF THE GERMAN AUXILIARY SCHOOLS will be held at Cassel on the 4th and 5th of April, 1899. Some of the topics, which will be discussed, are: The organization of the Auxiliary School; the First Instruction in speaking in the Auxiliary School; what children belong in the Auxiliary School and what limits should be observed in their admission.

A SEMINARY FOR THE TRAINING OF TEACHERS AND ATTENDANTS FOR FEEBLE-MINDED INSTITUTIONS has been in existence in Sweden for some time. The course covers a period of two years.

The first annual report of the *New Jersey State Village for Epileptics* is at hand. The managers have purchased a farm of 187 acres in a good state of cultivation. A never-failing stream of water and several springs are excellent features. An option upon the purchase of 215 acres more has also been obtained.

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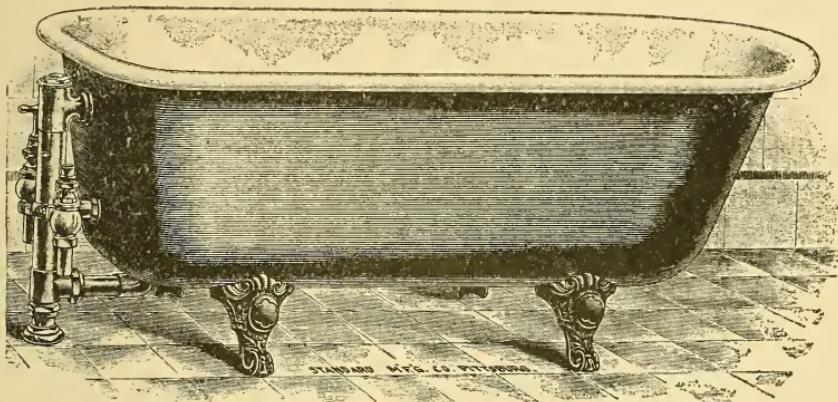


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Journal of Psycho-Asthenics.

VOL. III.

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NO. 4.

ANTHROPOLOGICAL STUDIES.

(Continued from last issue.)

ABNORMALITIES OF THE TEETH AND THEIR POSITIONS.

Abnormal positions of teeth may be divided into natural and mechanical, the first division embracing the prognathic and the invergent teeth, the second group comprising all those that are irregularly set in any way.

As prognathic we may term such teeth, whose long axes, in the proper position of an individual, would terminate far from his own vertical axis, in other words, teeth whose position is more slanting forward than usual. Invergent teeth, on the other hand, are those whose long axes are inclined into the mouth, so that they slant more or less inward.

Prognathic teeth are occasionally caused by the child's habit of sucking his fingers; otherwise they stand on the par with prognathic gums, and equally as these are a positive inferior organic character, which is very marked in some races of the negro and in the anthropoids. The upper teeth are more frequently prognathic than the lower when met with in the white; this is undoubtedly due to the greater freedom with which the upper teeth overlapping the lower can assume the slanting position. Nevertheless there may be a prognathism of

the lower teeth alone. This happens when the lower jaw is either too long, so that the lower teeth protrude in front of the upper, or when the jaw is too short. As to the significance of the sign, this is greatest when the teeth of both jaws are prognathic, and least when such condition exists only in the lower.

In the male feeble-minded the upper teeth were found prognathic (after elimination of the cases probably due to finger suction) in three cases, or almost two per cent, and the lower in two cases, or in about 1.3 per cent of those examined. Among the female, there were found one case with a double, three with upper and one with a lower dental prognathism. These proportions are larger than I have obtained among healthy children, but to establish the difference, one would need to examine for this particular item first of all a very large number of feeble-minded, and then a corresponding number of healthy children with the least possible hereditary predisposition.

The invergent teeth are a very peculiar character for which it is difficult to offer a substantial explanation. The inclination inward is usually very regular, and affects all the teeth of one or both jaws, though it is generally more marked either in front or on the sides. The teeth are occasionally at the same time smaller than the average. This condition is very rare in normal children. I found it in four out of 160 male and four out of 180 female feeble-minded examined. Twice the inversion was mostly marked in the upper teeth, five times in the lower teeth, and three times it affected the whole denture. Invergent teeth are not infrequent in apes, monkeys, and lower animals.

There is only one more item relating to faulty position of the teeth which remains to be considered, and that comprises the irregularities in setting of some of the teeth.

In a spacious human jaw, all the teeth are set in a beautiful and perfectly symmetrical hyperbola or parabola. But such jaws are to-day the rule only in the primitive races, and are

becoming more and more a scarcity in white people. The jaws of the white man tend to diminish in all directions, but they tend especially to shorten; this anthropological observation, for the support of which I have plenty of data on the skulls, will also be borne out by every dentist who has given this question any attention and who has had the chance to observe the jaws of people of different races. There may be even a difference as to the spaciousness of the jaws in the different social classes of white people alone, but this problem requires further and extensive investigation.

The consequences of the shortening of the jaws are various crowdings of the teeth, for the teeth are not diminishing their size in direct proportions to the jaws.

The crowding affects generally some part of the anterior two-thirds of the dental arch, and the third molars. These last must frequently for this reason be extracted, or they assume all sorts of faulty positions. I have seen their crowns point directly forwards, but still more frequently outwards, so that the wisdom teeth may at an ordinary glance into the mouth not be visible; or the wisdom teeth will point at various angles inward.

The second and first molars are as a rule in a normal position, which they have secured by their early appearance and great size. Occasionally they will become somewhat tilted, or inclined, in very old age, when the roots have become loosened.

The bicuspid do become occasionally displaced, which is generally by the faulty position of the canines.

The canines are very frequently displaced during the time of their development, not often later. This condition was noticed to be especially frequent in the feeble-minded, in whom the appearance of the canines is probably somewhat retarded; but I have also occasionally noticed the same faulty position of the canines in normal children. The condition consists in the following: The canine eruption does not appear

until after the second incisor and the first bicuspid are largely developed, fully in position and generally approximated. The canine then breaks through the gum, not between the last two mentioned teeth, as it should, but in different heights above this point, on the external surface of the gum. The growth of the canine proceeds then downward from this point, the tooth remaining considerably external to the plane of the other teeth. Eventually, however, in many cases the growing canine seems to spread the space between the incisor and the bicuspid, it assumes its proper place, and everything arranges itself into a normal, or almost normal condition. This faulty position of the canine is then more or less only temporary. As stated already, it was found frequently among the feeble-minded, though I have no numerical statistics of it. It is often unilateral.

But rarely is the canine displaced to a marked extent permanently; it was so only in three instances out of ninety feeble-minded above twenty years.

The most frequent consequence of crowding is a displacement of the incisors, especially of the upper set of these. In our male patients, we found the front teeth in both jaws irregularly set in thirteen cases, or 8.1 per cent of those who could be examined. The upper front teeth alone were irregularly set in another 8.1 per cent of cases; and the lower front teeth alone were irregularly set in one case, making the total percentage of faulty positions of front teeth in the male feeble-minded seventeen per cent. In female, front teeth in both jaws were irregular in ten, or 5.6 per cent; upper front teeth alone irregularly set in ten, or 5.6 per cent; and lower front teeth irregularly set in four or 2.2 per cent; total per cent of irregularities of the front teeth in the female, 13.3 per cent. Small grades of crowding were not considered. The crowding according to the above figures, is somewhat more frequent in the male than it is in the female. Our general report will show some very interesting statistics as to this point,

obtained on normal people, and on several other abnormal classes of individuals. What I can state now is: It seems to be the man's and not the woman's mouth, in normal as well as in abnormal whites, which is ahead in the shortening of the jaws, or in the evolutionary process. This of course should not imply that men are developing absolutely smaller mouths than the women.

THE HEALTH OF THE TEETH IN THE FEEBLE-MINDED.

In order to be able to state the condition of the teeth with respect to this item with any clearness, there had to be established a certain nomenclature. I sought for such a nomenclature on a scientific basis long before I began the examination of the feeble-minded, but I did not find it possible to succeed to my own satisfaction. The proper basis of such a nomenclature would be the possibility of a division of the teeth-decay into some more constant stages, and I could not detect any such stages. It is a plain fact that some teeth decay sooner than others, and it can be said in which teeth necrosis begins most frequent and in which next frequent, but after four, or at most half a dozen, teeth became affected, all further progress becomes exceedingly difficult to trace, and is irregular. In consequence, I found a scientific classification of bad teeth impracticable and I had to adopt one which is almost entirely arbitrary, but which is very simple and will possess at least some little advantages as an aid to the understanding by every reader of the data collected. In this nomenclature, and the same was followed throughout our examinations in the state, all such teeth are called *fine*, from which no more than two were plainly affected, or were lost, or both; where more than two and up to six teeth were affected or lost, the condition of the denture was termed *good*; in cases where seven to sixteen teeth were affected or lost, or both, the con-

dition was termed *mediocre*; and above this all dentures were recorded as in *bad* condition, a special mention being made of cases where all teeth were lost.

According to this nomenclature, I have obtained the following data on the feeble-minded. I place in the second column for comparison similar data obtained on 1,000 fairly normal children of from five to seventeen years of age, examined by me in the New York Juvenile Asylum:

	FEEBLE MINDED, 5 to 17 Years of Age.		CHILDREN OF THE N. Y. JUVENILE ASYLUM, 5 to 17 Years of Age.		FEEBLE MINDED (Above 17 Years of Age), 17 to 34 Years.		FEEBLE- MINDED, 17 to 45 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Fine teeth.....	37.6	44.6	36.4	48.1		5.7		25.2
Good teeth.....	44	37.5	44.5	42		37.1		25.2
Mediocre teeth....	11.2	12	17.4	9		40.0		30.5
Bad teeth.....	7.2	6	2	.8		17.1		19

All teeth lost, among imbeciles, male, none; female, none. No teeth lost among imbeciles, male forty, or twenty-five per cent; female fifty-two, or 29.2 per cent.

There are certain things which appear in a very neat way from the preceding table. The first is that the condition of teeth in the feeble-minded up to their seventeenth year and in the normal up to that same age, differs but very little. The real bad condition of the teeth is by far more frequent in the former. In evaluation of these comparisons, however, we must take into account the far more unfavorable hygienic conditions of the mouths of the feeble-minded. Cleanliness of the mouth in these patients, if attempted already, which is very seldom before their admission into an institution, is always very difficult. In addition to this there is frequently an increased salivation, with consequent baggy gums. Tartar deposits and bleeding gums are common. The mouths of some

individuals of this class are, and remain more or less against whatever to the contrary can be done in the institution, genuine sewers. If with all this we still find a percentage of fine teeth almost as high, and in the case of boys a really somewhat higher, than in normal children, we must of necessity decide that up to a certain age the quality of the teeth in the feeble-minded is better than it is in the normal.

After seventeen, the proportion of bad teeth rapidly increases in the feeble-minded, and is decidedly larger than we would find in the normal. It is difficult to say how much of this difference may be due to the difference in the lack of care for the preservation of the teeth. It is sure that we will find no idiot's mouth to bristle with precious metal, as many of the mouths of the healthier ones do after thirty, or even earlier. Nevertheless, there is apparent in some of the feeble-minded, but without much reference to age, a process of extensive teeth-destruction not equaled, or but extremely seldom equaled in healthy individuals. It is largely due to cases of this kind that we owe the large proportion of "bad" cases among the feeble-minded beyond seventeen years of age. I will give here a few such individual examples.

Teeth left in the mouth:

Both healthy and decayed in a boy of 7, 6.

In a boy of 8, 8.

In a girl of 10, 12, etc.

I found no such dentures in the healthy children. This process of excessive dental destruction is, however, not the generalized tendency among the feeble-minded, but an exception affecting certain special cases. I was not able at this time to give these cases sufficient attention to find by what other signs they also differ from the majority of the imbeciles.

As the feeble-minded advance towards forty, they shed their teeth like a normal person of sixty or seventy. This is the only way I can characterize the extensive losses of teeth in the older of these patients. It is a premature dental senility, to which only now and then will be found some exception.

Why should the teeth of the younger feeble-minded be superior to those of other children? I believe we must know the whole physiology of that class before being able to satisfactorily answer this question. Perhaps the succeeding consideration may also help us to throw some light upon it.

If we carefully observe on the preceding table the proportions of the various classes of teeth in the two sexes, we must be impressed with the almost constant dental superiority of the females, and this fact persists among the healthy as well as among the feeble-minded, and through all ages. To what is due this phenomenon? There is practically no difference in the care of the teeth in the two sexes in any except perhaps the second division of the feeble-minded, which comprises the older patients, but such a possible difference, which would depend on the greater care the adolescent and adult female gives to her teeth is in all probability fully offset by the beneficial effect of tobacco on the teeth in the older males.

The only way in which we may arrive at any understanding of the existing differences, is apparently only by establishing the anthropological value of superior denture. Caries of teeth is most prevalent, from among all the zoological species, in man, and among the human races it is most common in the white man. The lower down zoologically we proceed from the white man the less frequent caries of the teeth becomes; the higher we proceed in evolution the more frequent it is. That this proposition amounts practically to a law will be acknowledged by every anthropologist and every student of comparative anatomy. The vitality and resistance of teeth decrease with the advance of evolution, and superior teeth in a class of beings under these conditions cannot but denote a correspondingly lower stage of organic advancement. I think that the superior condition of the teeth in the female is to be added to the characters of their jaws, which were considered under the "diastemata," and that it has a related significance.

(c) Alveolar arches:

A clear mental image of the average or normal of these structures must also here underlie the examination, and form a standard from which any deviations may be contrasted. The concept of normal alveolar arches can be easily acquired, if the observer is capable of a systematized attention. A normal alveolar arch has a certain form, generally that of a hyperbola; it is symmetrical; it is of certain thickness, which is but slightly greater than the thickness of the teeth at their insertion into the gums, and especially so anteriorly; and, finally, normal alveolar arches present each a moderate inclination forwards, a moderate protrusion. As to size of these structures, which is largely relative, examination on the living will only seldom detect any difference of value, and hence this item must be left out of consideration, at least so in a report of this nature, and after the amount of attention which we have given this subject in connection with denture.

Of such normal arches as defined above, we find the following percentages among the feeble-minded, according to their ages:

Male.	Female.
Up to 15 years, 78 examined.....56 per cent.	56 examined.....56.8 per cent.
15 to 25 years, 68 examined.....47 per cent.	85 examined....34.1 per cent.
Above 25 years, in 2 cases out of 11.....	35 examined....37.1 per cent.
Percentage of normal from the total examined.....50 per cent.	..... .....40.3 per cent.

The proportion of normal arches is small, and especially so in the female, where abnormal arches are to the normal in the proportion of three to two. The proportions of normal arches are the greatest in youth; they diminish during the adolescence, and seem to remain stable, at least so in women, of whom alone we have a sufficient number after twenty-five years of age, in the adult life. These data demonstrate that about ten per cent of the abnormalities of the alveolar arches in the

male, and about fifteen per cent of same in the female feeble-minded, do not take place until during the terminal part of the growth of these beings. In all probability a number of these cases which manifest themselves so late are of acquired origin. The excess of abnormalities in the female extends to both children and adolescents, but seems to be somewhat greater in this latter.

As to the proportion of the normal to the abnormal alveolar arches in healthy children and adolescents, I cannot lay down any figures, not having completed as yet that particular examination on such numbers of healthy individuals as I wish to obtain; but it is certain from the data that I have already at hand that the percentages of normal are in every class of the healthy, higher.

Every one of the before-enumerated characters of the normal alveolar arches may suffer a modification, and if this has attained a certain degree, the arch in question has to be considered in that respect and to that degree abnormal.

The above stated normal characters of the alveolar arches determine our first classification of the abnormalities of the same, a classification according to the *kind* of the abnormality. But we have to consider still another classification of these deviations from the normal, and that is one which is based on the nature of the *origin* of those deviations. A certain number of abnormalities of the alveolar arches must be relegated to hereditary influences, or still further back, to the recurrence of inferior zoological characters, while another series has been simply more or less acquired during the life of the subject. Undue prognathism is the best example of the former class, a simple irregularity, or asymmetry, of the latter. We will keep the terms "hereditary" and "acquired" for these two divisions of the abnormalities of the alveolar arches, although it would be desirable to coin terms of a greater precision.

I will present here the whole scope of abnormalities of the structures under consideration as found in the feeble-minded, and we can give a brief consideration to each item after.

Deviation of form and symmetry.—We found irregular and asymmetrical arches, low and high arches, excessive narrowness in front, and polygonal arches.

As to thickness, a certain number of arches were found much more massive than the average.

The inclination, finally, was found both defective and excessive, this latter much more frequently.

Deviations of form and symmetry.—The irregular and the asymmetrical arches: These abnormalities consist in a greater size of some parts, or of one side, of the arches, than of other parts of the same or of the side opposite. Such differences in size are due either to an overgrowth or to an undergrowth of some part or parts of the arches and disturbances which give rise to them are only local, or at most half-sided, which are very distinctive characters of acquired conditions. It is difficult to fathom the ultimate cause of the abnormality in many cases of this class; but some of the irregularities seem to me to be due to traumatic causes or inflammatory processes, while a number of the asymmetries are apparently of a neurotrophic origin; rickets, finally, may account for many of the remaining instances. The following percentages of irregularities and asymmetries of the alveolar arches were found among the feeble-minded of the Syracuse State Institution:

Male.	Female.
Up to 15 years, 78 examined.....2.6 per cent.	56 examined.....1.8 per cent.
15 to 25 years, 68 examined.....1.5 per cent.	85 examined.....7.1 per cent.
25 and above, 11 examined.....2 cases.	35 examined.....2.9 per cent.
Total of 157 cases..... .....3.2 per cent.	Of 176 cases.....4.5 per cent.

The numbers examined in each of the groups were apparently not large enough to enable me to draw any conclusions. The only decided difference is to be noticed in the two sexes between fifteen and twenty-five years, showing that the ado-

lescent female possesses a considerably larger percentage of asymmetries of the alveolar arches than the adolescent male.

Low and high arches.—In estimating the lowness of the alveolar arches two sources of error must be borne in mind and avoided. The one is the fact that all alveolar arches are low in the very young, and that we find many such normally in children up to six and seven years of age, in one word throughout the first dentition. The second source of error appears later on in life, and is due to the absorption of the arches after, or even without, the teeth having been lost. I found a number of instances of each form among the feeble-minded of Syracuse, and they have been promptly excluded from the record. As to the absorbed arches, this phenomenon is early and frequent among this class of patients; I found it very prominent, for example, in a girl of nineteen, who had lost fifteen of her teeth, and in another of twenty-one who also retained more than half of her teeth in her mouth; and there were several very distinct cases where the teeth were like extruded from their sockets, these having receded by absorption. Besides these instances, there were found:

	Male.	Female.
Very low arches, one or both, in.....	4.5 %	2.3 %
Very high arches, one or both.....	1 case.	1 case.

As to the significance of these two forms of alveolar arches, I think that the low one represents an infantile condition and implies an arrest of development; the very high arch is in every way closely related to the prognathic arch, which is also frequently higher than the average.

Excessive narrowness in front: Is almost confined to the upper arch and frequently associated with prognathism; its causes are no doubt hereditary. It was found in:

	Male.	Female.
Up to 15 years.....	2.6 %	3.6
15 to 25 years.....	2.9 %	8.2 %
Above 25 years.....	(*)	2.9 %

*Once in eleven cases.

The abnormality is more frequent in the female sex, which supports its relation to prognathism; and it is especially common in adolescence, showing that it is then when it arrives at its greatest prominence. The lower arch alone narrow was seen in but one male. Both arches narrow in front were found only in one female. An opposite condition, or very broad arches, were met with in one male.

The *polygonal*, or angular character is generally restricted to the lower arch; in all my examinations on both the normal and the abnormal classes, I found this anomaly only twice or three times in the upper arch, and one of these exceptional cases was in one of the Syracuse feeble-minded.

A typical polygonal dental arch has the exact form of the anterior half of an oblong hexangle. The front of the arch formed by the incisor insertions is not convex in these cases, as usual, but entirely flat; the canine-alveoli form the points of junction, or angles; and from these the rest of the arch on each side proceeds in a straight, more or less diverging line backwards. The polygonal arch is usually entirely regular, and its aspect is one of the most striking. I present here a drawing* of a lower jaw with such a polygonal alveolar arch; it was not possible for me up to now to obtain a satisfactory, clear photographic view of such an arch on the living.

The signification of the just described anomaly is somewhat obscure. A late eruption of the canines, or the large size of these teeth, may have a certain influence in the production of the angular appearance, yet the former condition is

*See page 131.

by far not enough frequent in the lower jaw to account for all the cases of polygonal arches met with. On the other hand, the belated eruption of canines in the upper jaw, where it is frequent, does not give rise to angularity; and as to size of the teeth, one can see frequently canines of similar sizes, and larger, in absolutely normal jaws.

A very early eruption of the canines may have a larger influence in the shaping of the alveolar arch, than one belated. But we may come nearer comprehending the anomaly by noticing its associations.

The polygonal lower arch was found in 8.3 per cent of the male and in 18.9 per cent of the female feeble-minded; and of these instances, it was associated in 61.5 per cent in the male and in 45.5 per cent in the female, hence in about one-half of all the cases, with prognathism of the upper arch. So common an association of the two characters is certainly not without a significance. The polygonal arch, if we base our opinion on this its very frequent association with prognathism, would of necessity have a similar origin and meaning as this latter, and the prognathic arch, of which we will speak subsequently, is decidedly a character of organic inferiority, or of reversion. The following table gives us the different proportions of the polygonal lower arch at different life-epochs of the feeble-minded:

	Male.	Female.
	Per Cent.	Per Cent.
Before puberty, up to 15.....	5.1	14.3
During adolescence, 15 to 25.....	13.2	23.5

During adult life, above 25, in none out of 11 cases.....14.3 per cent.

There is evidently a culmination of the abnormality in adolescence, showing that it is towards the end of the period of growth of the being when it reaches its most pronounced character.

The thickness of the alveolar arches is modified usually in but one direction; it becomes augmented. In order that the thickness of the arch should become an anomaly, it is necessary, first, that it should be met in an adult; second, that the thickening should be pronounced; and, third, that the thickening should be that of the bony arch itself, and not only of its covering.

The male adult arch is generally somewhat thicker than that of the female. As we regress to childhood, the relative thickness of the arches increases, and the difference between the two sexes becomes progressively smaller. In infancy, the upper alveolar arches are normally quite massive, and there is no difference any more appreciable in the two sexes. The massiveness of the alveolar arches in infancy is largely due to their lowness; in the adult, we still find occasionally a massive arch which is also low, but the massiveness may be observed in other arches of normal height. When an abnormal thickness or massiveness of the arches is present, it is, as a rule, in the upper arch.

The just described variety of anomaly has at least two forms of origin. In a number of cases it is a persistence of infantile character and hence a weakness in this particular point of evolution of the being; in another number, probably larger, of cases, the thick arch is a consequence of some pathological condition. A regular and low thick arch can in all probability be ascribed to the first category, while an arch which looks swollen about the insertion of the teeth, is certainly of the latter variety.

Massive arches predominate in the male feeble-minded and they are much more frequent in the young than in the older, showing that the infantile condition may be simply prolonged, and may disappear later. The percentages found are as follows:

	Male.	Female.
	Per Cent.	Per Cent.
Below 15 years	20.5	10.7
15 to 25 years.....	8.8	3.5
Above 25 years.....	None in 11 cases.	5.7

Deviations from the proper inclination: The dental arches may be vertical, instead of moderately slanting forwards; or they may slant too much, or be prognathic. The meaning of the two conditions is widely different. They represent two extremes of the condition of the human alveolar arches. All the really lower human races, and progressively all the animals below the human species, are prognathic; or, if we progress from the lower species to man, and from the lower human races towards the white one, we obtain a steady and regular increase of orthognathia of the alveolar arches, or their approach to the vertical. Acquisition of prognathism during life is excluded; and in consequence we have in this character one of the most valuable indications of organic inferiority, or of reversion, according to circumstances. In the whites prognathism is practically always a mild degree of a reversion.

The completely vertical arches, on the other hand, although of an opposite significance to the prognathic, are nevertheless also abnormalities, for they are even in the white man but rare exceptions. Furthermore it is a question if this form cannot be produced, besides by the evolutionary tendency, also by some other means. However it may be, the vertical arch is a rarity among the feeble-minded, having been found in four instances only, or in about one per cent, out of the total examined. In three of these four cases it was only the upper arch which was vertical, and in one instance it was both. All the three former cases occurred in the male, while the last was found in a female patient. Young children, where the

inclination of the alveolar arches is smaller on account of the incomplete development of these, were not considered.

(d) *Hard Palate*.—The roof of the mouth, or the hard palate, begins above the alveolar arches. It is formed of four osseous parts, the two palate-processes or plates of the superior maxillary, and the two horizontal plates of the two palate bones; and of three sutures, namely the intermaxillary, the interpalative, and the maxillopalatine. The three palatal sutures form a cross, the top of which lies backwards. In the living, all these bony parts, which it is important to carry in mind during all study of the palate, are covered by a closely adhering, not very thick, mucous membrane, which interferes but little with our examinations for the possible irregularities of the bones and permits us even to a certain extent to detect abnormalities connected with the sutures.

A normal palate is generally associated with a normal alveolar arch. The shape of a normal palate laterally is that of a low, broad hyperbola; antero-posteriorly it describes a half of an ovoid, the broader end of which lies posteriorly. There are no ridges visible on the normal palate, and its two sides are almost perfectly symmetrical. Its standard breadth, height, and length, must be learned by actual observation of numbers of normal people. The normal male palate is generally slightly broader, and perhaps slightly lower than the female palate. In infants and young children, the roof of the mouth is normally somewhat shallower than it is in the adult.

In examination of the palate, this should be exposed as fully as possible in a good light, and with the lips of the subject pushed away somewhat from the upper gum. The examiner's best position is that, that when he stands, the line of his vision should correspond to the median line of the palate.

The abnormalities of the palate are very numerous in white people, and even in apparently healthy and normal individuals, I found some sort of a deviation from the normal in thirty-three per cent of 700 of the male, and in 38.8 per cent of 300 female

inmates of the New York Juvenile Asylum, most of these inmates being entitled to be considered as entirely average normal. It is true that most of these abnormalities were of rather slight character, nevertheless they were distinct imperfections.

The white race is the only one whose palate is so considerably affected. Among my studies on crania of different people other than the white, it is quite a rare case to meet with an abnormality of the palate, and this rarity increases with the racial inferiority of the group considered. Beneath the human species, abnormalities of the palate are, I believe, among the rarest occurrences; outside of one case of a torus, I have never seen any such anomalies in the monkeys or apes.

The causes of so many abnormalities of the palate among the white people will yet command a great deal of study before fully known. What may be said now, is, that among all the anomalies of this structure we find but few distinct signs of reversion. The animal palate differs from the human principally in its length, and often also in the relative height and width: The palates of the apes are very long, shallow, and narrow. The human palate is but seldom very long or very shallow; and its narrowness, which is frequent, has generally other causes than reversion. There is undoubtedly a large element of heredity in the numerous cases of palatal abnormalities in the white race of people, but these hereditary influences do not generally appear sufficient to cause a return of an inferior organic character of the structure.

The proofs that heredity plays a large part in anomalies of the palate are numerous. We find some such anomalies at all ages, or at least at all ages from the time the palate has reached a sufficient differentiation to enable us to clearly recognize its characters. We find a larger percentage and graver forms of palatal abnormalities in children of the rachitic, the syphilitic, the tuberculous, the neuropathic parents, etc., than in the children of parents who were healthy and did

not suffer from any grave constitutional disorder. Finally, we find this and again some other form of anomaly of the palate in members of the same family during two or even more generations. All of which leads me to the conclusion that in palatal abnormalities direct or indirect heredity is a very important factor.

It is impossible to state where, in the case of abnormalities of the palate, heredity stops and acquisition commences; nevertheless a certain number of cases, particularly some of the asymmetries, are distinctly traceable to the latter.

The abnormalities of the palate are capable of a systematic arrangement, and an effort at such has been made by probably every author who ever treated of the subject, but as the matter stands to-day, we do not possess any generally accepted, simple, and efficient classification. In view of such a state of affairs, the writer feels justified in considering the subject to a certain extent independently.

A change in any simple structure can take place only along the lines of the characters of such a structure, unless there is possible besides this, as may be the case with a living part, some new formation, a tumor. The normal human palate is of a certain form; it is symmetrical; it is of a certain length, height and width; its sutures are not detectable, or but very slightly so, under the mucous membrane; the structure has its own evolution, and it is exceedingly rarely the site of tumors. These are the basal characters of the palate, and any deviation from the typical must concern one or more of these characters. Every good symptomatological classification of abnormality of the palate must be based on these its characters.

The form of the palate may undergo various deflections from the normal, and its variations form our main difficulties in classification. Every one of the dimensions of the roof of the mouth may be diminished or increased, and constitute thus an abnormality. The symmetry may be modified in but one way, and that is to asymmetry. The sutures may be too slow

or too rapid in union, both of which conditions, however, are to be determined in the examination of the skeleton, and not of the living; but there is one important phenomenon observable under all circumstances and connected with some disturbances bearing a relation to the sutures, and that is a production of an exostosis along the suture, of the so-called torus. And finally, we may have serious defects of evolution of the roof of the mouth.

Abnormalities of the form alone of the palate are not frequent and not numerous, unless we include with them cases due to abnormalities of the dimensions of the palate, or even appearances due to anomalies of the gums. In fact, palates which were normal in their dimensions were found to present three deviations only, one of which was a gothic arch, the second a very oval outline of the base, instead of a parabolic or a hyperbolic one; and the third comprises various irregularities, without a relation to the general shape of the arch. Only once in all my examinations have I encountered what could be called a dome-shaped palate.

There were observed some palates whose base-line or, again, whose lateral section would approach the shape of a horseshoe, but in all these cases it was the alveolar arches, and especially their coverings, whose abnormalities gave the roof of the mouth such an appearance, while this alone may have been perfectly normal. In order to satisfy myself on these points about the palate, I examined about 500 skulls of different people, and, again, I never found any of the last-mentioned shapes of the palate alone, though abnormal alveolar arches would sometimes lend it some such appearance. There are still some other terms used in connection with abnormalities of the palate, but the student will soon find that most of these prove only sources of confusion. I hope to be able to give this whole subject a detailed consideration in my general report on the anthropological work in the state hospitals.

The gothic palate represents a pointed arch, so that the two sides of the roof of the mouth, instead of forming a regular concavity, meet at an angle of various sharpness. This gothic form is occasionally associated with a narrowness of the palate, but at other times it exists independently. Curiously, the character is much more frequent in male than in female subjects. Among the children of the New York Juvenile Asylum I found the gothic palate five times among the 700 boys, and in no case among the 300 girls examined. In the Syracuse feeble-minded, this same anomaly was found in sixteen cases, or ten per cent out of 160 male, and in four cases, or 2.2 per cent out of 180 female patients. There is still a considerable preponderance of this character among the male subjects in the imbeciles and the whole percentages are far higher among these than among the subjects of the former class. Some of this disproportion may be due to the fact that a majority of the instances of the gothic arch among the feeble-minded were found in the adults, while among the juvenile asylum inmates there are only children and adolescents. If we compare the two classes only in the scale of similar ages, that is between five and seventeen years, we still obtain among the feeble-minded the higher percentage of five per cent of gothic arches in the male and 1.3 per cent of same in the female. In consequence we have to assume that there exist some conditions in the feeble-minded which favor the development of a gothic palate. It is furthermore evident that a majority of the cases of this character do not manifest themselves before the latter term of development of the roof of the mouth.

An oval arch is very seldom enough oval to be determinable on the living subject, and on this account it will be best to exclude it here from consideration.

Irregularities of the palate are closely allied to the asymmetries of this structure, and the two should be treated together, having often the same origin. By the term irregulari-

ties of the palate are designated such cases, where the arch, instead of being smooth and regular, shows throughout either a distortion or irregular elevations and depressions. In a certain proportion of asymmetrical arches the same conditions are present as just described, only that they affect one-half of the palate either exclusively, or much more than the half opposite; but there is another distinct variety of asymmetry of the arch, which consists simply in uneven inclinations of the two sides. A large number of both the irregularities and the asymmetries is no doubt of acquired origin and due to pathological conditions of the floor of the nose, the antrum of Highmore, or the alveolar arches. A small amount of asymmetry which exists in a great many palates is probably dependent on the equally or even more frequent slight asymmetry of the whole face, and was not considered in our examinations.

Of irregular palates, there were found only five examples among the feeble-minded, and all these in boys. The condition may be considered rare. Of marked asymmetries, on the other hand, we obtained 19.4 per cent in the male and 11.7 per cent in the female. Quite a number of these cases were of a very pronounced character. Among the inmates of the New York Juvenile Asylum, a similar anomaly was detected in six per cent of the boys and in 10.6 per cent cases of the girls; very pronounced asymmetries were observed in but one or two of these cases at most. There is a very marked difference in this respect between the two classes of boys, but there exists also a degree of similar difference between the feeble-minded and the healthy girls, only that this difference consists much more in the quality than in the frequency of the asymmetries, the character of the anomalies in the feeble-minded girls being on the whole graver.

The palatal asymmetries in the imbecile increase somewhat with age, as will be seen from the following table. They are particularly frequent in the adults:

Male.	Female.
Up to 15 years we had.....16.2 per cent.	And 7 per cent. of asymmetries.
From 15 to 25 years we had...18.8 per cent.	And 9.3 per cent. of asymmetries.
And above 25 years we had..27.3 per cent.	And 21.6 per cent. of asymmetries.

As to the significance of this class of anomalies of the palate, this will naturally differ according to whether the abnormality is of a purely trophic origin, or whether it is simply an accompaniment of other asymmetries, or whether finally it is only a result of some abscess or some inflammatory process or of an injury seated in the neighboring structures. The origin of the asymmetry ought to be decided individually in every case, as the same effects on the palate may be due to different causes. Unfortunately, such an investigation is extremely unsatisfactory, not only in the feeble-minded, but in most of the abnormal classes of individuals.

Deviations of the dimensions of the palate: The three dimensions of the palate, namely, its length, height and width, may be either markedly increased or decreased, and that individually or in various combinations. The alterations in width and to some extent also those in height, may be local or general.

A marked increase or a decrease in the length of the palate is but seldom determinable on the living, and particularly on the young, and hence the consideration of these two characters can here be dismissed.

Abnormalities of the height and of the width of the roof of the mouth are closely related and will be considered together.

The height of the palate undergoes a much more frequent modification than its length. In a large majority of cases the modification consists in an increase in the height, but occasionally there is found a marked decrease in the dimension. The increased height of the palate is frequently associated

with a decreased width of same. Such association was present in forty per cent of the cases of abnormally high palate found in the male, and in thirty-six per cent of cases of same abnormality found in the female feeble-minded. In about sixty per cent of the cases where it is observed, abnormal height of the roof of the mouth occurs alone, the other dimensions of the arch being normal.

Where increased height and decreased width occur together, it seems as if in these cases the normal arch became uniformly compressed from side to side. In these instances the augmented height is apparently only a consequence of the narrowing; both these conditions may depend largely on the state of the palatal sutures. When the sagittal suture of the skull becomes prematurely occluded, the skull grows invariably very high and narrow, and there is all reason to expect like results from a similar premature occlusion of the antero-posterior suture of the palate. I have not been able to collect a sufficient number of positive data as to such occlusion of the palatal suture on the skulls that I had at my disposal. Although I examined a fair number of skulls, it so happened that I found but a few cases with a pronounced narrowing and heightening of the arch, and a number of these were of too old people to be of any value to me in this particular research. But I hope to be able to definitely settle this point as soon as we have sufficient osseous material from the cemeteries of our state hospitals, for there is no doubt but that a great many of the individuals buried in these cemeteries bore very pronounced palatal deformities and will yield us the desired information. The pathological institute is making strenuous effort to obtain this very valuable osseous material from the burial grounds of the state institutions.

The point, namely, whether the narrow and high, and perhaps many cases of the simply narrow palate, is due to the premature occlusion of the palatal suture, is so far of importance that, if demonstrated positively, it would remove

these large classes of palatal abnormalities from the domain of purely hereditary anomalies, and place them in the category of indications of pathological processes taking place during the life of the individual. Such a knowledge in turn would help to indicate to the physician at which points he is to concentrate his attention in his endeavors to hinder abnormalities of this order.

The merely high palate is undoubtedly of a hereditary origin. As to the origin of the merely narrow palate, which is quite frequent, there is a considerable uncertainty.

In the examination for both, the high and the narrow palate, the influence of the character of the alveolar arches on the appearance of the roof of the mouth cannot be fully avoided. This applies especially to those cases where the alveolar arches are high. Such arches will invariably give an aspect of abnormal height to the palate, for there is no line of demarcation between the two structures. Thus, even with the best care, the real percentages of abnormalities of the height and width of the palate will be smaller than those recorded.

Besides the above-mentioned deviations from the normal dimensions of the palate, we occasionally find others. The narrowness may, for example, be confined only to the anterior third or half of the arch, and this anterior narrowing may be so great that the arch is almost V-shaped, the angle of the V pointing forwards, or, again, we may have excessive shallowness combined with narrowness of the palate, which, however, is rare. A broad palate, or a broad and shallow arch, is a little more frequent than this last condition. Finally shallowness alone may be occasionally detected. In estimating shallowness, old subjects must be excluded.

The following figures show in the proportions of abnormalities of the height and width of the palate among (1) the healthy children of the New York Juvenile Asylum, and (2) among the Syracuse feeble-minded:

ABNORMALITIES OF HEIGHT AND WIDTH COMBINED.

	Male.	Female.
	Per cent.	Per cent.
Healthy children.....	23	25
Feeble-minded.....	44.4	36

It will be noticed that the combined percentage of the abnormalities of the height and width of the palate are very considerable in both groups. But, although they were found in almost one-fourth of all the healthy children, they reach to over one-third of those who could be examined among the imbeciles. The following table will give the varieties of the deviations and their relation to the age of the subjects, in the Syracuse patients:

	PALATE.						
	V. high only.	V. narrow only.	High and narrow.	Broad.	Shallow.	Narrow and shallow.	Broad and shallow.
Up to 15 years, male (80 examined)....	9.8	27.5	6.2	0	1	2	0
Up to 15 years, female (57 examined)....	10.5	12.3	3.5	0	1	...	...
15 to 25 years, male (69 examined)....	14.5	16	7.2	1	2	...	...
15 to 25 years, female (86 examined)....	15.1	8.1	8.1	1	3	1	...
Above 25 years, male (11 examined)....	0	(*)	(†)	0	0	...	...
Above 25 years, female (37 examined)....	8.1	16.2	8.1	0	2	...	...

*In one case.

†In two cases.

The table shows that the simply high palates predominate in the female, the simply narrow palates in the male. The high palates increased somewhat with age or at least so up to the twenty-fifth year, the narrow decrease; otherwise there is not much difference in the sexes or in the ages. The smaller proportion of high palates after twenty-five years is no doubt largely due to the numerous cases of absorption of the alveolar arches, which fact makes the palate look much shallower, or

even entirely flat, where the gum absorption is much advanced. In estimation of the shallow arch, all cases with absorption of the upper alveolar process were excluded.

The high and narrow palate is quite frequently at the same time also asymmetrical.

There remains to be described in this connection a grave form of abnormality of the palate, which was met with in three of the Syracuse feeble-minded, and which I saw only one single instance of outside of the Syracuse institution. This abnormality consists in a total deficiency of the palate. The inner surfaces of the alveolar arches in these cases are flat, and they incline together in such a way as to form a more or less sharp angle, the summit of which is generally filled with a sharp ridge of bone or torus, a few mm. wide. The whole roof of the mouth in these cases is low and rather short; the upper alveolar arch in every one of the four instances I saw was considerably narrowed. There is absolutely nothing in such a mouth which one could call a palate; there are only the converging alveolar processes and the sharp ridge between them. The cases in which this excessive deformity appeared, were: (1) A boy of fourteen, feeble-minded since birth, with defective speech, dentition doubtful, upper alveolar arch prognathic, narrow; (2) a girl of fifteen, feeble-minded since birth, no further history, second lower molars have not yet appeared, a diastema between lower middle incisors; and (3) a girl of nineteen, feeble-minded since birth, with no further history, with many teeth lost, gums much absorbed and retracted. All the three cases carry beyond a doubt some sort of grave hereditary predisposition, of which the palate is in all probability only one of the manifestations.

It may be remarked that the just described anomaly of the palate is not owing to any undue proportions of the alveolar arches themselves, nor to any pathological destruction of the roof of the mouth.

Abnormalities concerning the palatal sutures:

There is only one class of such abnormalities which can be safely detected on the living, and that is the class of exostoses situated along the sutures. All such exostoses are commonly comprised under the term torus, a latin term, signifying a rounded swelling, bulging, or elevation; the term is misleading, however, because the greatest majority of the elevations we find along the palatal sutures are not rounded, but oblong, or long, following as they do sometimes a part, sometimes a whole suture. We will term here such elevations palatal ridges, and not tori.

The real nature of the palatal ridges is not known. They are extremely rare in the lower human races, and I have never found one on the skulls of animals, except in the case of one ape. In white people, on the other hand, these ridges are quite common; I find them in a little over three per cent in the general population. Their most usual situation is along the antero-posterior suture of the palate; in one case only, in a feeble-minded subject, have I seen a marked bony ridge occupy the site of the transverse suture. Not all the palatal ridges extend along the whole intermaxillary suture, although those that do are perhaps in a slight majority; a large proportion of the elevations occupy only from one-third to one-half of the hard palate. When seen in the living, the palatal ridges may be of various prominence, may be sharp, narrow, or broad and dull, may be cut abruptly, or taper gradually, and although they are mostly regular, still we will find them occasionally presenting an irregular outline or surface. When seen on the skull, these ridges appear to be productions, exostoses, of one or both of the adjoining edges of the palatal processes of the superior maxillary. Many of these elevations look as if they were produced by an attempt at a further lateral growth of the palatal processes, after these could no more widen from some cause or other; the new bone looks like having been deposited in the direction of the least resistance, which is downward, upon the palatal surface. We find the ridges already

present, however, during later childhood and during adolescence, when the expansion of the palate still proceeds, and on this account we can only look upon these formations as on products of irregular palate growth at some period in the evolution of the palatine arch. The situation and extent of the ridges are apparently directly proportioned to such a trophic irregularity. It is still further probable, and this is supported occasionally by collateral facts, that the trophic irregularity was allied to, if not identical with, a rachitic condition of the osseous system in general. It is well known that rachitis causes atrophic retardation in the bones, and that this retardation is followed by an augmented and often more or less irregular deposition of the bony tissue, and such phenomena would clearly account for the ridges along the palatal sutures, where osteo-trophic processes are more active than in any other portion of the palate.

The palate ridges never consist of osteophytes.

The following table gives us the proportions of palatal ridges found in the feeble-minded:

	Per Cent.
Total proportion in male.....	3.8
Total proportion in female.....	10.6

In both sexes of the feeble-minded the abnormality is more frequent than among the healthy, but the proportion is three times as great in the female as in the male in these patients, which is not the case with the healthy, where the percentages of both sexes are nearly equal. According to ages, the distribution of the abnormality was as follows:

	Male.	Female.
Up to 15 years.....	5%	12.3%
15 to 25 years.....	3%	9.3%
Above 25 years.....	(*)	10.8%

*In no case out of eleven.

Apparently the origin of the palatal ridges is early and not developmental, as were some other forms of abnormal palate; this early origin upholds the theory that rachitis is the cause of these abnormalities. In a few cases where the palatal ridge was present, there were also other rachitic signs in the mouth, as for instance, a delayed dentition; marked asymmetries on the other hand, are but seldom observable in the same palate where a ridge occurs.

As to the situation and the prominence of the ridges in the above cases, there were as follows:

In 54.5 per cent of all the cases where the ridge occurred, it was general.

In 18.2 per cent of the cases the ridge was confined to the anterior two-thirds of the palate; and,

In 27.3 per cent of the cases the ridge was confined to the posterior two-thirds of the palate.

The ridges were very prominent in twenty-four per cent of their whole number and of moderate dimensions in seventy-six per cent of their whole number. Small ridges were not counted.

The isolated case of a transverse elevation was found in a boy of eleven, and the ridge was of considerable prominence.

It should be added here, that if the examiner uses also his touch besides his sight in the exploration of the palate, he will not only appreciate better the elevations which he could plainly see, but he will feel many small ridges which his eye has not detected, or has detected but imperfectly. In this manner the examiner will also occasionally detect little oblong bony elevations in other parts of the palate than along the sutures, especially so in the aged. No ridge, however, which was not very plainly seen, has been included in our data of the abnormal.

As to marked defects in the evolution of the hard palate, we are acquainted with only one such, and that is the so-called cleft-palate. Not all of the clefts observed on the roof of the mouth are defects of the hard palate, indeed only a

very small minority of the clefts are of this nature, their largest number concerning only the soft palate. Thus among the feeble-minded, although there were found several clefts of the posterior part of the roof of the mouth, not one of them involved the hard palate.

The causes of cleft palate are, I believe, entirely hereditary, and of a degenerative nature.

(E) Uvula: The normal uvula is a little conical muscular organ, from 0.5 to 1.5 cm. long and about 4 mm. in average thickness, hanging down in the median line from the soft palate. The musculature of this little pendant consists of the azygos and the levators uvulæ; the nerve supply does not seem to be clearly established, but Quain's Anatomy (V. II., part 2, page 309, 1894,) makes the statement that all the muscles of the uvula are probably supplied by the bulbar portion of the spinal accessory nerve through the pharyngeal plexus. The abnormalities of the uvula manifest themselves in its size, its shape, and its position: The organ may be very long, or very broad, or again diminutive; it may be deformed; and it may suffer a deviation to one or the other side from the median line.

Differences of uvulæ in size, and especially in length, are frequent, and we have to allow about a centimeter for its normal length variations. Decided abnormalities in size, or length, on the other hand, are not very frequent. Very long uvulæ occur in about one per cent of the feeble-minded; very broad uvula was found once; and the organ was diminutive in two male and two female patients, which is slightly over one per cent of those examined. As to the very long uvulæ, their percentage may to a certain degree be brought down by early amputation of the organ.

Marked deviations in shape are equally, or even more rare, in the uvula, as are very pronounced abnormalities in size; they were found in only two Syracuse patients. In one of these two cases the organ was simply very irregular, while

in the other case, besides being irregular, it had a small appendix hanging down from its point. In both instances the deformity was natural. Small and unilateral deformities of uvula are found in many cases of a long standing deviation of the organ.

In connection herewith there may be mentioned two cases of bifid uvula; but these, I think, are simply light grades of a cleft rather than a deformity proper.

By far the most frequent abnormalities of the uvula are its deflections. These deflections are almost, as a rule, lateral; only very seldom anterior or posterior. They are found in about one-sixth of the general population. In the New York Juvenile Asylum, we found eighteen per cent of such deflections among the male and 18.6 per cent. among the female children. The proportion of deflections seems to be slightly larger in the female sex. Deflections to the right are slightly more frequent than those to the left (as fifty-five to forty-five among the above-mentioned healthy children). Small deflections were not included in any of my data, as they very frequently depend merely on a momentary greater action of one of the muscles of the organ than of the other. I have found even a considerable number of such deviations due to a one-sided contraction. Such cases can be avoided by directing every patient with a deflected uvula to swallow once or twice and re-examining him after, when the great majority of the spurious deflections will have returned to a normal condition.

The percentages of deflected uvula among the feeble-minded, and especially among the female of this class, are still higher than those obtained on healthy children or people. Our records show, also, as will be seen from the subjoined table, that the greatest number of the deflections date from early childhood or from before this. A small percentage of them, nevertheless, develops later.

Table showing the proportion of normal and deflected uvulae in the feeble-minded of the Syracuse State Institution:

	Number Examined.	Uvula normal in every respect.	Total per cent. of marked deflections.	PER CENT. FROM THE TOTAL PER CENT. OF DEFLECTION.	
				Deflection to right.	Deflection to left.
Up to 15 years {	Male	75	Per cent.	Per cent.	Per cent.
	Female..	55	70.7	25.3	58.05
15 to 25 years {	Male	69	74.5	23.6	42
	Female..	81	68.1	.29	53.8
Above 25 years {	Male	11	60.5	39.5	50
	Female..	35	63.6	27.3	53
Total.....	Male	155	60	37.1	47
	Female..	171	65	27	33
Total of both sexes....		.....	.....	48.3	69
				51	45
					51.7
					49

The figures just given are in the whole so plain and uniform that they will not require much additional comment. The class of patients above twenty-five years of age shows, as it has done throughout, the disturbing element of a somewhat small number of cases. The number of individuals required to express properly any condition of the class should not, it is apparent, be less than fifty.

The striking features of the above data is the considerable and sudden increase of the deflections in the female sex during adolescence. I can offer no plausible explanation for this increase. The causes of uvula deflections in general are rather obscure. The most plausible explanation would be that they are due to a paralysis of one of the muscles of the organ, but even if this explanation were acceptable with the feeble-minded, where paralyses of all kinds are frequent, we could hardly apply it to the one-sixth of healthy individuals in whom similar deflections are observable. There are apparently some additional causes besides a nerve-paralysis to be thought of, and the matter will require a further investigation. A few possible causes of uvula deflections other than paralysis may be:

A congenital deficiency, partial or entire, of one of the lateral muscles of the organ; a uniform congenital deficiency, and not a paralysis, of innervation; and pathological conditions, especially inflammations and infiltrations. The sound part of the uvula would, in some of these cases, be on the flexed, in others on the extended side.

The whole subject of uvula deflection affords much that is of interest, and it should be given a wider attention.

C.

RÉSUMÉ.

My report concluded, the final questions which present themselves are: how much have these investigations added to the knowledge of the feeble-minded; and, in what way can they benefit this large class of patients. My brief answers to these two questions are the following:

The investigations whose results are here reported are but partial studies, and they cannot throw light on more than a few points of the whole status of the feeble-minded; a far greater proportion of equally important points regarding this class of patients remains still to be inquired into.

The light the concluded investigations throw upon the real state of the imbecile is only proportionate to our ability of tracing and explaining the various classes of abnormalities of the parts examined. The individual data show what kinds and what proportions of abnormalities exist in certain organs of the feeble-minded. By contrasting these data with similar ones obtained by the identical procedures and by the same investigator on comparatively healthy individuals, we can show that almost all the abnormalities treated of predominate in the feeble-minded. Some of our data show finally an association and some interdependence among various abnormalities, and thus help to increase or sustain our knowledge of

their causation. The whole report is a little contribution to the general pathology and to the etiology of the feeble-minded, and should not be viewed as anything more; but that a sufficient number of such groups of investigation, carried on with a rigorous preciseness and associated properly, would constitute a whole, largely new, and valuable knowledge of this class of patients, will I think not be contested.

The other question, as to what benefit these investigations may be to the feeble-minded themselves, could be more properly answered at the completion of a number of similar studies to this one, than at the present. Nevertheless there can be indicated here at least some possible benefit of the present as well as of similar future studies. They will, first of all, show how far the body and especially the nervous system, of the feeble-minded is affected, besides their mind; and they will show further the state of the body in these patients at the different stages of their lives. Such a knowledge of the physical state of the feeble-minded cannot but be a most valuable source of indications tending to physical improvement, and to differentiation, of these patients. A physical improvement would mean an increased utility of these unfortunates, a diminution of needed attention for them, and other advantages. In brief, such investigations as this group is an example which, if completed, would form a basis on which there could be effected a general elevation of the present status of the feeble-minded, and such an improvement could not but be accompanied with considerable economic advantages. But, this would not be the only benefit of the obtained knowledge; its greatest advantage would lie in the fact that it would bring us directly to the causes and that to the original besides to the apparent causes, of the mentally defective. Such causes are to all appearances, varied and numerous, and their knowledge would show the roads along which alone it may be hoped to ever effectually prevent or hinder feeble-mindedness.

And there is still another and that not an inconsiderable advantage to be expected from a thorough study of this class of patients. Every one who will glance over the first part of the preceding report; will notice the intimate relations of the feeble-minded with other abnormal classes of beings, their relations with the criminals, petty or great, with paupers, with the prostitutes and the disorderly, with the epileptics, and with the insane. A more thorough investigation will reveal far more clearly these and still other relations, and it will demonstrate the fact that the feeble-minded are simply a link in the great chain of the degenerate class and not an isolated class by itself. An advanced knowledge of this class of beings will throw a great deal of light on all the other related classes, and this will be particularly true of the epileptics and of the insane, which two groups stand in the closest relations to the mentally defective. In fact, the study of the insane, as well as that of the epileptics, can never be complete without the knowledge of the feeble-minded.

I think there will be none who will question the foregoing conclusions, and who would not favor the continuation of the studies here begun. Nor is there any very material obstacle why these studies should not go on, under the same direction, and under similar circumstances, as were undertaken those of the first group; that is, under the auspices of the Pathological Institute, and in connection with similar studies carried on simultaneously on other abnormal classes of the New York State population. The paramount requirement for such further studies on the feeble-minded and the idiots, is a proper and full appreciation of the work by the authorities of the various institutions for these people in the State of New York. The first and the main condition of success will be the moral support of the State Board of Charities, which supervises these institutions, and of the several superintendents of these institutions. There are the best hopes that this support may be gained and be generally given in the future, as it has been

given already in a most generous way by the superintendents of the Syracuse and the Rome state institutions.

Another condition which would very much facilitate certain important studies on the feeble-minded and on the idiots, would be a provision, by which some one could be assigned in each of the state institutions for a certain duty, which I will outline below. There are certain very important things, which must be once thoroughly learned if the study of the mentally defective is to be in any way complete, and which it is utterly impossible for the examiner to adequately obtain under present conditions. A few such things are the patient's family conditions, and the first observations of the patient and his life outside of the institutions. The asylum case-books, no matter how carefully conducted, cannot give us more than a mere glimpse at these conditions, and yet what is there of more consequence for a knowledge of the origin, of the character, and of the possible prognosis of the mental defect, than just the facts of this order? These facts can never be obtained properly on a large number of cases unless there is some one employed in each institution who can give this subject his whole, undivided, and at the same time intelligent and well directed attention. The house physician cannot do this, for he has many other duties to attend to and these investigations require a considerable time with each case admitted. But it would be otherwise if in each institution one of the more intelligent employes could be assigned for this purpose. Such an employe should be a male, as the investigations bring out at times facts which it would be at least very awkward to deal with by a woman. He might be in constant virtual relation with the department which will conduct his studies, but all facts obtained by him would be the property of his institution; they would constitute, in a comparatively short time, most valuable, reliable records, fully able to be utilized for scientific deductions. Provided that three such clerks could be appointed, one at the Syracuse, one

at the Newark and one at the Rome state institutions, the yearly appropriation for these three persons need not much exceed one thousand dollars; and the result would certainly justify such an extra appropriation. By this simple step and its consequent results, the New York State institutions for the feeble-minded and the idiots would place themselves at the head, in this direction scientifically, of all similar institutions, both here and abroad.

May this my proposition, with which I close this report, be noted by the authorities of these institutions, and receive their sincere consideration.

GLIMPSES OF SCHOOL WORK AT LAKEVILLE.

BY MISS SKINNER, LAKEVILLE, CONN.

Ruskin says, "Education is the leading of human souls to what is best, and making what is best out of them; the training which makes men happiest in themselves, also makes them most serviceable to others."

Feeble-minded children are very susceptible to kindly influences, quick to repel all impatience, and usually respond readily to persistent, firm and pleasant training when undertaken in a friendly manner. It is very true that we can accomplish but little in teaching or anything else, unless we are ourselves to some extent what we wish our pupils to be. It has been said that: "The inspired work of the true teacher knows no bounds except those which God's horizons and laws of spiritual gravitation impose, and she who is always at her best, being and doing the best that then and there in her lies, with no suggestion of stint and every unconscious suggestion of love, of solicitude, of self-sacrifice is giving off virtue from her very garments." We do not know that this is really true, but we do know that these children are quick to detect the false from the true and much more ready to give their verdict than normal children.

One of the greatest sources of pleasure to our children is the study of Nature. They all enjoy studying about Mother Earth with her children, the flowers and trees, the laughing brooks and flowing rivers the beautiful lakes and high hills. Golden Hair and Blue Eyes (the Goldenrod and Aster) have a fascination for them, and they like to talk of them. They are so delighted to have spring come again, bringing the birds and

flowers, and vie with each other in hunting for the earliest flower to be the first to gather it to present to some favorite friend. Indeed we are especially favored here as we are just above the shore of one of the most beautiful of the many lakes in this region, Lake Wononscopomoc, in the "Switzerland of America," as Henry Ward Beecher christened the town of Salisbury. With such an environment we have peculiar local advantages for the study of geography. The birds are watched, talked and studied about.

They are delighted with biography, especially the lives of Lincoln, Washington, Franklin, Longfellow and Whittier. They read and then write about them from memory. The Village Blacksmith, Children's Hour, Hiawatha, Paul Revere's Ride, Snowbound and Pied Piper they enjoy reading again and again. They have memoried some of the poems and a few do unusually good work in illustrating them. Most of the older pupils enjoy drawing or copying pictures, and two or three do very creditable ink work from objects. We unite our geography and history study and are now reading King's Geographical Readers, especially everything pertaining to New England. We are visiting the lakes and rivers in Maine, the shoe, scale, cotton and printing establishments in Vermont and Massachusetts in imagination. Colonial Children and Primary Histories are read and studied, and whatever happened in or near our group of states carefully noted.

Nearly all expect to do a few things in number work, if nothing more than to bring the teacher one or more named objects. A few are interested in fractions and percentage.

As a rule their writing is well done, and nearly all the older classes write distinctly and neatly. The first letter home is laboriously wrought with unsteady fingers and all the will power concentrated upon the few feebly expressed characters, but what a Herculean task accomplished, and how the eye brightens and the cheek glows when it is at last finished. We always enjoy hearing, "I did it all my own self," when

perhaps the task is only a mark or two drawn upon the slate or blackboard and really represents the thing called for.

Music has great charms for them. Often a child who cannot articulate a word, or but very few, will be heard humming correctly the tune the others are singing. It is indeed surprising to see how quickly and easily many of them catch a tune and some of them are capable of great improvement if the latest and best methods of teaching music were applied to them as to normal children. They certainly have made great improvement, and skillful work in this branch usually gives better results than in most any other. Even the little ones enjoy forming an orchestra of their own and pass many happy hours playing on their simple instruments. But to many of them the rote process in music seems to be the only one that is successful.

The kindergarten with its games, gifts and occupations is a never-ending source of pleasure and of inexpressible benefit to them in every way, while to a portion of them it is the first and almost all the instruction they receive. The boys, as well as the girls, enjoy sewing, especially if the card represents some pretty picture.

Some excel in fine embroidery and seem to take great pleasure in doing it. They take delight in making boxes, blotters, picture frames, paper flowers and sachet bags.

Physical culture should form an important factor in their education. They need the drill to strengthen their weak muscles, to teach them the right use of them and to form habits of concentration and regularity.

As we note the improvement of normal children from day to day and rejoice in their progress, so in these children we watch and greet with satisfaction and pleasure any improvement and feel that our labor has not been in vain. We can truthfully say that our best efforts with them do not pass unrewarded.

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EDITORIAL.

INCREASED LEGAL RESTRICTIONS TO MARRIAGE.

At the New York meeting of the association a committee of three was appointed to secure the appointment of like committees from the National Conference of Charities and Corrections, the Prison Congress, the Medico-Psychological Society and such other similar bodies as might be interested for the purpose of instituting an investigation of the subject of pre-

venting the marriage of certain defectives. There has been an unusual interest manifested in the subject during the last year and several attempts have been made to modify existing legislation to this end. Nothing has been accomplished except an increased study of the subject, because the need has been felt of more exact data than any heretofore available. It is quite generally conceded at the present time that neither an insane nor feeble-minded nor epileptic person should marry. It is, however, a serious problem to formulate a method of procedure, simple and yet effective, that will insure the marriage right of those entitled to it and effectually preclude it from those not entitled. It is hoped that the subject can be very carefully gone into, however, and we shall keep our readers advised of the progress made.

THE SUPERINTENDENCY OF THE NEBRASKA SCHOOL FOR FEEBLE-MINDED is at last settled (?) after a protracted warfare of recriminations and sundry legal proceedings. We are not informed as to the qualifications of Dr. Lang, the new incumbent, but it is to be hoped that he will remain, if possessed of reasonably good qualifications of head and heart, long enough to become versed in a knowledge of the work required. The institution must necessarily fall very short of the object for which created if its management is to be subject to change with every political election.

NOTES AND ABSTRACTS.

ANTHROPOLOGICAL INVESTIGATIONS UPON ONE THOUSAND WHITE AND COLORED CHILDREN OF BOTH SEXES BY DR. ALEX. HEDLICKA, FORMS THE SUPPLEMENT TO THE FORTY-SEVENTH ANNUAL REPORT OF THE NEW YORK JUVENILE ASYLUM.

The object of this investigation was to learn as much as possible of the physical state of the children, with the expectation of increasing our knowledge of the normal child and of the various classes of abnormal children. Interesting data concerning the evolution of the children in different ages has been gained as well as a definite statement of the physical differences of white and colored children. The measurements taken were: Height, sitting height, arm expanse, weight, depth of chest, width of chest, circumference of head, length of head, width of head, height of head, bi-auricular diameter of head, smallest, width of forehead.

Of the 1,000 children examined 700 (634 white and 66 colored) were boys and 300 (274 white and 26 colored) were girls. A decided deviation from typical form was called an abnormality, of which there were two classes, the congenital and acquired. The significance of these abnormalities varies, and is still being discussed. However, no single abnormality, and but a rare combination of them suffices to stamp an individual as a human degenerate. About one-seventh of the children had no blemish on their bodies, the number of boys and girls being about equal; twenty per cent of the children presented only one abnormality, which in many cases was in-

significant. Marking all those children as physically inferior, who had one or more abnormalities in one-half of the parts of the body, there were of such 8.7 per cent. There was not much difference as to color, but a marked one as to sex, the females showing a smaller proportion of subjects with abnormalities. The average proportion of abnormalities to whole number of subjects having same were to each white boy 2.71, to each colored boy, 2.60; to each colored girl, 2.05, and to each white girl, 2.33. Excluding the physically inferior children, the remainder are considered to be fairly average children.

The regions in which the most abnormalities were found were the parts about the head, face and mouth. Abnormalities of the palate, ear and male genitals are most frequent. As to sex there is not much difference, although the bodies of the white girls appear to be more free from irregularities than those of the white boys. The variety of abnormalities observed in the children is very great, yet there was no abnormal type of individual present. A large portion of the abnormalities were of slight character.

All classes of abnormalities predominate in male children, both white and colored, especially in the case of irregularities acquired by habit. The white children possess a larger proportion of inborn abnormalities. The negro children acquire more irregularities than the white. There was no child who could be called a physical degenerate.

There were only 45 of the children who displayed heart abnormalities; of these 10 were slight, and may be temporary, while the others were undoubtedly due to anæmics and neurasthenics. There were 10 cases of left-handedness.

The maximum of abnormalities was encountered at the ages of 8 and 9 years.

The height of the children was slightly less than that of public school children. From the sitting height it was found that a child's limbs grow in proportion somewhat more rapidly

up to the thirteenth and sixteenth years. The length of limb was somewhat less than Dr. West found in public school children. The weights of the children were slightly less than that of public school children. As to pressure and traction force the greater was in the right hand. The negroes exceeded the white children at all ages. As a rule greater pressure in the left hand was not associated with left-handedness. In the negro there is greater strength to each pound of the body than in the white children.

Arm expanse equals body height at from 9 to 11 years. Here again the negroes exceed the white children.

In size of chest the boys exceed the girls, and white children the negroes. Flatness of chest increases as the children grow older.

As to size of head the boys exceeded the girls. Increase of size of head with age takes place in different ways, however, with age their heads grow longer and the cephalic index diminishes.

All the children of the institution taken as a class are apparently somewhat below the average of free, well nourished children in their growths, which is doubtless due to malnutrition and neglect.

On comparing the white and colored children it was found that the negroes had greater height but less weight up to puberty; the form of head was more fixed but not so large as that of the white children, their hair was curly and lacked lustre, forehead was narrower, face prognathous and nose short and broad, lips prominent and thick, mouth was broader but teeth more regular, uvula was short and thick. The ear of the negroes was characteristic, there was less fat but more muscle, arms were longer, feet were longer and flatter, the colored girls did not show feminine characteristics as soon as the white girls.

Comparing the physically normal children with all of these we find them, as to measurements, superior and with fairly normal abilities and character.

Of the children with 5 or more abnormalities, the measurements were inferior to the average. And, although they were frequently of inferior mental ability and of abnormal character, yet this was not general.

Seven and seven-tenths of the children were criminal or vicious. As a class they were not characterized by physical inferiority or large proportion of abnormalities. As to mental ability they were equal to the average.

The children whose parents were intemperate, criminal, insane or dissolute were inferior physically, mentally and morally. This class shows the least hope of treatment.

Among the orphan children there was a tendency to physical inferiority. There was nothing extraordinary intellectually. But there was a large percentage of misconduct among the older ones. Children whose parents had died from consumption showed the same physical inferiority with the same tendency to misconduct, probably in both cases due to lack of training.

In conclusion the wish is expressed for the extension of similar investigations.

A. R. WYLIE.

THE DEVELOPMENTAL INFLUENCES OF PLAY is ably discussed by Dr. J. H. McKee in Pediatrics for May 15th. This article deserves careful study by parents and teachers. The author not only presents very forcibly the necessity of play as an educational force, but happily points out the necessity of directing these activities and their involved mental states in such a way as to promote ethical culture.

IMBECILITY AND THE INSANITY OF IMBECILITY BEFORE THE LAW is treated by Dr. C. H. Hughes in the April "Alienist and Neurologist" in the form of a medico-legal record. This valuable discussion was brought out by the trial of Benj. F. Cronenbold for murder and the final conclusion that he was an imbecile, the crime having been committed as a result of mental suggestion.

THE OLD HOSPITAL BUILDING OF THE IOWA INSTITUTION FOR FEEBLE-MINDED AT GLENWOOD burned Thursday night, April 27, completely destroying the two upper floors. The head nurse and children on the upper floor narrowly escaped. By active and efficient work the fire was subdued before the basement story was injured, except to a slight extent.

"The meeting of the Association of American Institutions for the Feeble-Minded was held in New York City, May 11-13. This meeting occurring at a time when we were very busy, we could not be represented.

"We would like to suggest that the next meeting be held in June, so that the schools that have a vacation would have an opportunity of attending.

"The Washingtonian, May 13, 1899."

"A NATIONAL LEAGUE FOR THE PROTECTION OF FEEBLE-MINDED CHILDREN has been organized in Italy largely owing to the efforts of Prof. Baccelli, Minister of Public Institutions. His chief aim is the creation of a medico-pedagogic institution in each province for the training of these unfortunates."

THE MEETING OF THE ASSOCIATION, at the Murray Hill Hotel, New York, on May 11-13, was well attended, and the proceedings full of interest. The following papers were read and discussed:

"Cases of Idiocy Without Physical Defects."—Dr. S. J. Fort.

"Paralytic Idiocy."—Dr. W. E. Fernald.

"The Self-Supporting Imbecile."—Alexander Johnson.

"The Study of the Blood in Idiocy."—Dr. A. W. Wilmarth.

"Circulatory Anomalies in Idiocy."—Dr. W. A. Polglase.

"Thyroid Treatment of Cretinism."—Dr. J. M. Murdoch.

"The Use of Nature Studies in Sense Training."—E. R. Johnstone.

"Teaching Feeble-Minded Children."—Harriet E. Skinner.

"The First Steps in Thought Training."—Margaret Bancroft.

"Studies in the Discrimination of Sense Perception in the Feeble-Minded."—A. R. T. Wylie.

The meeting next year is to be held at Polk, Pa., at the Western Pennsylvania Institution for Feeble-Minded. Alexander Johnson of Indiana was elected president.

The Journal is glad to number upon its exchange list two excellent periodicals which have recently made their appearance, "The Revue Internationale de Pedagogie Comparative," which is published in the French language, and "Nyt Tidsskrift for Abnormvaesenet," published at Copenhagen. They are both monthly journals, and are full of interesting material to workers among the defective classes and the educational field in general.

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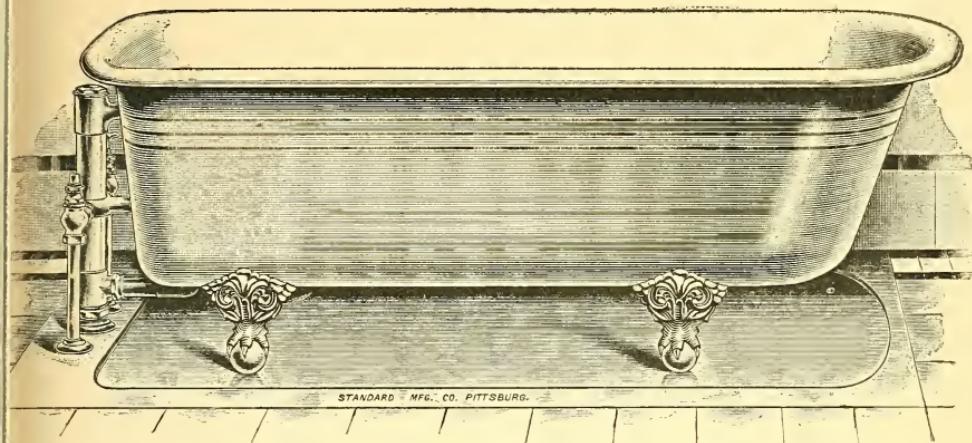


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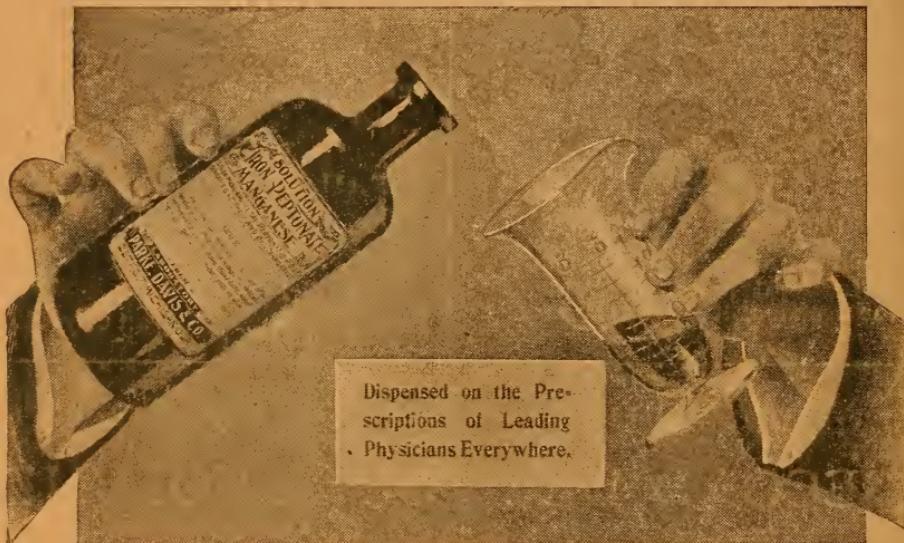
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Journal of Psycho-Asthenics.

VOL. IV.

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NO. 1.

PRESIDENT'S ANNUAL ADDRESS.*

BY MARY J. DUNLAP, M. D., VINELAND, N. J.

Members of the Association:

In beginning to write an address to the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons, and to make the customary "summing up," I am reminded of a passage in Edward Everett Hale's story, "My Double, and How He Undid Me;" for, in attempting to add my share to the accumulated knowledge and wisdom of the members I, too, feel "There has been so much said, and so well said, that I should not occupy your time." Yet we know there is more to say, until every state in this Union has heard, understood, profited, and realized that it is to its advantage, and to the advantage of every individual, to listen and be benefited by the story of this battle for the elimination of the "unfit."

I have thought it would be advisable to hold our annual meeting in a state not already cognizant of its need for an institution of this character; and lest some stranger present may not know of these, I will name the states that are in line. From Massachusetts in '48, and New York in '51, seventeen

*Note.—Read before the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons, New York, May 11, 1899.

others have wheeled in, namely, Pennsylvania, Ohio, Connecticut, Kentucky, Illinois, Minnesota, California, Indiana, Iowa, Nebraska, Michigan, Kansas, Maryland, New Jersey, North Dakota, Wisconsin and North Carolina. Missouri is striving for the "light," with Virginia and Colorado for company, and they will receive it, even if at even-time, and with the satisfaction which comes from a "sense of duty done."

After fifty years of struggle, to-day our special branch of the world's work occupies an enviable place. The accumulated experience embodied in the reports of this organization for nearly a third of a century, is the consensus of the study and care of the phrenasthenic.

The value, too, of our journal cannot be overestimated. It is the organ of the current history of the work.

Our policy is most liberal. Non-medical officers are welcomed with the professional, and no member can attend an annual meeting without receiving fresh inspiration and new ideas.

We meet remembering that having convictions is not a blunder, much less a crime. The man with many kinds of thought is the successful man. Some of these many kinds of thought will be expressed to-day.

"The object of this association is" (as we know) "the discussion of all questions relating to the causes, conditions, and statistics of idiocy, and to the management, training, and education of idiots and feeble-minded persons. It will also lend its influence to the establishment and fostering of institutions for this purpose." But, to accomplish this end, do we need such a long name? Would a change be desirable? While we may not regard comments, we remember that the happiness of the gods consisted in neither giving nor receiving vexation. But we have also a story of a Scotch judge who said he was satisfied with having heard the plaintiff, and he did not wish to be prejudiced by listening to the defendant's plea. Let us settle the matter during the present session.

Would it not be well, annually, to invite the Legislature of each state not yet represented to send delegates to our meeting?

Dr. Fernald's proposition of last year is to be carried out to-day, and we will have the subject presented in its many phases by the eight scientific papers, with their discussions; these, with others on the work in general, promise to make this year's meeting the most valuable yet held.

Members of the association, I thank you for the honor you have accorded me; appreciating, as I do, that it is the highest this National Association of Medical Officers can bestow. I am gratified that you deem me worthy.

Proud that I am a woman, I rejoice that I have the training of a physician, and that I can stand, to-day, your confrere in this conflict for evolving the best, highest, perfect type of the life human. I confess, when the presidency was given me, I felt great diffidence in accepting the honor, recalling the noble men who have occupied this chair—Wilbur, Knight, Brown.

I offer nothing but the introduction to your labors, and the prophecy of a still greater future for you.

THE HOW, THE WHY, AND THE WHEREFORE OF THE TRAINING OF FEEBLE-MINDED CHILDREN.*

BY MARTIN W. BARR, M. D.,

Chief Physician of the Pennsylvania Training School for Feeble-Minded
Children, Elwyn, Pa.

That sentiment of Charles Dickens, "It is better that every kind of work honestly undertaken and discharged should speak for itself rather than be spoken for," applies most pertinently to work among the feeble-minded; for not by exhibits alone, which show merely results, but by viewing actual working processes can the public be brought to rightly estimate the tremendous importance of this work, or in fact to understand at all the how, the why, and the wherefore of the training of mental defectives.

The basis in this scheme of development, where the three H's supersede the time-worn three R's, is the recognition of touch as the most sensitive as well as the most reactive of all the senses; therefore we utilize it as the master key which shall set free the powers of the head—the hand—the heart.

The axiom that the will is best stimulated by and through the emotions is daily verified in dealing with natures absolutely sluggish and indolent, intensely perverse and obstinate or unduly nervous and excitable. This stimulus to be healthful must be natural, and what more natural to a child, from the days of traditional mud-pies up, than the love of making something, unless it be the love of tearing up, and even that has long since been recognized as due to a spirit of investigation, and to be therefore constructive rather than destructive. Indeed we must take the child as he is without attempting to

* Read before the National Educational Association, Washington, D. C.,
July 13, 1899.

make him over again; direct the destructive activities into constructive channels—make the stream turn the wheel and it will not sweep away the mill.

A little ball which I have in our museum of children's work I am inclined to consider the most valuable thing in the whole collection. The boy who made it was almost of the lowest grade of mentality. His hand against every man, he fancied every man's against him. Always under close custodial care that he might harm neither himself nor others, he would vent his spleen in tearing his clothing. His teacher, a woman of rare patience and devotedness, one day sat beside him tearing strips of old linen and laying them in order. "See, Willie, let us make some pretty strips and lay them so." His wonder grew at seeing her doing what he had been scolded for doing, and at once there was a bond of sympathy. She was playing his game—the only one, poor little fellow, that he was capable of—and he joined in. "Now we will draw out the pretty threads and lay them in rows." For weeks the child found quiet pastime in this occupation and the violent nature grew quieter in proportion. One day the teacher said: "Let us tie these threads together and make a long string." It took him months to learn to tie those knots, but meanwhile his attendants were having a breathing space. "Now we will wind this into a pretty ball and I will cover all you make for the boys to play with," and a new occupation was added to his list. The next link in this curious chain of development was a lesson in knitting. Through months of patient teaching it was at last accomplished, and the boy to the day of his death found his life happiness in knitting caps for the children, in place of tearing both them and their clothes.

You see she was wise enough to utilize the natural activities of the child and direct evil propensities into a healthful channel. Had she brought knitting and bright yarn or anything foreign to him first it would have been truly putting new wine into old bottles. His obstinacy would have been aroused and he would have torn clothes to the end of the chap-

ter. Now just what this shows is to be found in varying results throughout all the grades of trainable defectives or *imbeciles*. The *idiot* or unimprovable class and the *idio-imbecile*, the direction of whose feeble powers so far as to aid in the care of himself or his weaker brother can hardly be dignified by the term training, we will not discuss here, although they are unfortunately found in large proportion in the custodial departments of all training schools in this country. It is the imbecile or trainable class which is here presented in the four different grades which experience has dictated and proven. These grades of mentality are not to be confounded with school grades in the common acceptation of promotion in studies; on the contrary between these grades there is a distinct line beyond which there is rarely an individual case of advance, though there may be, and often is, retrogression.

Here we have the low-grade who can never learn to read or write, trainable only in the simplest acts of house or farm service, who can know nothing beyond a life of drudgery, but will on the whole be content therein. This grade generally presents two types—one good, docile, obedient, having little or no will power; such a one out in the world becomes the ready tool or the victim of the designing or the vicious, and thus innocently helps to fill our prison wards. The other obstinate, perverse and indolent, needs always a strong hand to keep him at constant occupation, which is all that preserves him from a lapse into idiocy. He would be the tyrant of a household—the terror of a community.

The middle grade, trainable in varied degree in the useful and mechanical arts, may or may not as an aid in his development be taught to read and write, but will never use the knowledge practically in his work as a good servant or a fairly good mechanic.

The high grade, capable, in intellectual capacity, of advancement as far as the first intermediate, can never, without danger of breakdown, attempt all the studies of that course. His life work must therefore be sought in the various trades

and handicrafts to which his development by means of manual training, from the kindergarten up, has always been directed, and life happiness, possibly as a skilled artisan, for him be assured.

Lastly, the moral imbecile found in all three grades, often abnormally bright, may vary intellectually from a brute to a genius, but the moral sense is absolutely wanting. It is from this class that the criminal ranks in all lands are largely recruited. His permanent sequestration under close custodial care, with as many ameliorations as possible, is absolutely essential to the safety of himself and of society.

In hearing *how* we strive to arouse dormant faculties, and that manual training is not only the basis but the means and the end in all our efforts, you have probably already arrived at some of the many reasons—*why*—

First: *Safety for the individual.* In dealing with mental weakness, either congenital or accidental, there is always danger, under pressure, of outbreak into insanity or a lapse into idiocy. We must stimulate and arouse the sluggish nature while we quiet and restrain the excitable. Now in the wide field of its varied occupations manual training offers a great advantage over the purely intellectual; an advantage incalculable to us, forced as we are to consider not only different grades of mentality but the peculiarities and proclivities of individuals in each grade. Not only does it afford greater selection for the child, but opportunity to the teacher for observation and immediate change according to needs. A diagnosis of intellectual processes under the excitement of class competition is not so easy, and the remedy therefore not infrequently comes too late.

Second: The happiness of the individual; and all true happiness must have its root in self-respect. We are dealing with a race that has too long been despised and rejected, and science, by indicating many hitherto unrecognized, is adding a host bright enough to be extremely sensitive and unhappy under such conditions.

To avoid pauperizing and to stimulate self-respect we must offer some avenue for gaining the respect and appreciation of others. This is best done by uplifting and maintaining the dignity of labor, and this for all grades. Even the lowest is made to feel: "Who sweeps a room as to thy law, makes that and the action fine." "Study to show thyself a workman approved" must be our charge to the many, if each is to realize "Not what I have, but what I do is my kingdom." This, moreover, for the moral imbecile who, in close custodial care, must find his only safety in congenial employment if we would avoid that blot upon nineteenth century civilization—the record of the unoccupied in prison cells.

The social qualities, also, so often dwarfed in the narrowness of class competition, expand freely in this natural atmosphere, where honest work well done is made the true gauge of character.

The moral effect of the daily use of the try square cannot be over-estimated. Egotism, that bane of the abnormal, finds in it a constant check, while altruism is best fostered in the work-room where each is called to admire and consider "not his own but another's good." Furthermore, when the child in the kindergarten, the girl or boy in the work-shop, has faithfully modeled, improved or originated any one thing worthy to be offered as a gift, these children who can know nothing of the value of money, have yet within their grasp that without which the rich man with all his possessions would be poor indeed—the power and the right of giving. We aim indeed to make this the dominating spirit—even the acquirements of reading and writing are made tools to this end; those who can learn being encouraged to entertain and assist those who cannot. Music and drawing alike are not to be regarded as mere accomplishments for the individual, but all must minister to the common good.

And wherefore all this for imbeciles! Is it worth it? many may ask.

Ah! between that question and answer lies a hundred years

of experience, and the working out by scientists and philosophers of a basis for the coming century to build upon.

Work among mental defectives, having its birth with the nineteenth century, has grown with it, enriched by its thought and discoveries; and adapting itself to its ever-increasing demands, it has so modified that its character and aims are alike changed. What in the beginning was a philanthropic purpose, *pure and simple*, having for its object the most needy, and therefore naturally directed toward paupers and idiots, now assumes the proportions of a socialistic reform as a matter of self-preservation, a necessity to preserve the nation from the encroachments of imbecility, of crime, and all the fateful consequences of a highly nervous age.

The enthusiasm of Itard in 1800 to reclaim the wild boy of Aveyron, which inspired the efforts of his pupil Seguin in his wonderful work at the Bicêtre, was a noble preparation, but still, as Seguin himself admits, was only experimental until "Haller, Boerhaave and Morgagni had brought physiology to its rightful place at the head of the medical sciences," and Rousseau and Pereire and others had demonstrated its application to education. Then the closing decade of our first half century witnessed a simultaneous movement in England, America, and on the Continent in the establishment of institutions for the training of mental defectives. The work was good of its kind, and we have not improved upon it, nor can we, for it was expended chiefly upon the class which, as I have told you, is largely unimprovable. It was, and is, embarrassed greatly to-day by the idea eagerly embraced by the ignorant of *cure*. I wish it were only possible to convince some of the heart broken mothers that for congenital mental weakness there is no cure. One may as well talk of curing a child born without an arm as restoring a defective brain. We cannot replace that which never was placed.

In this new era now opening before us, science again points the way, and having before dictated new principles as bases of practice, she now designates new cases to be treated. Med-

ical science in all its branches, educators from kindergarten to university, have, during the last half century, studied man. Viewing this investigation, culminating as it has in this wave of child study, one might say that anthropology and sociology had led all in one common bond to the cradle, to note there the influences of fateful heredity and of a nervous environment.

This simultaneous investigation and comparison of views has caused rapid modification of thought, judgment, and consequent action, already materially affecting individuals and society. In law, in medicine, in education we find signs of less dogmatism and severe condemnation, more time given to observation, and greater desire to assist rather than to foree nature. As criminology begins to show the criminal the irresponsible victim of ill rather than its deliberate author, and as alienists and neurologists constantly note and report new examples of nerve disorder, society begins to recoil from the evils of imprudent marriage connection, and from a high-pressure system of life and education, falsely so called, and so the signs of the times are full of hope—hope which shows endless possibilities for teachers and guardians—of a dominant and dominating race. It means success and victory all along educational lines if untrammeled by defectives, but defeat which will lead to tedious and endless readjustments if teachers are forced to continue the impossible task of dragging normal and abnormal up to one common standard.

Let us meet the crisis, recognizing it as a national one, and win as our nation has won before. One hundred thousand of the feeble-minded in the United States alone, constantly increasing by birth and immigration, and not one-tenth provided for in institutions. The rest crowd our schools, walk our streets, and fill alike jails and positions of trust, reproducing their kind and vitiating the moral atmosphere.

Science and experience have searched them out and classified them as here presented, but hundreds of their brethren are desolating homes, paralyzing the energies of normal peo-

ple, or suffer in prison cells, the innocent perpetrators, not of crime, but of motiveless acts.

To nations and races as to households and individuals must come a clearing-out time, and it has come to us. There must be a sifting out, and "each must go to his own place" if we are to clear the way for twentieth century progress, and therein lies the *wherefore* of our work. We are already preparing to receive the element which the backward classes of feebly gifted children and the truant schools will eventually bring to us, and we are doing it by means not of mere trade schools—that will come later—but of an all-round system of development through manual training. We must take what the schools sift out, but in order to do this, we too must have our clearing, for we shall need space, and yet more space. With our untrainable population—the idiots and idio-imbeciles—provided for in institutions suited to their needs, and we relieved of the odium as well as the care, the better class of improvable will drift more freely from them to us, and we thus be enabled to extend our legitimate work of training to embrace the trade schools, which shall give life-long occupation to these children that sit in darkness and shadow. Not only must we be enabled to relieve the schools and to press forward ourselves, but soon we too will need relief from overcrowded conditions.

Having trained, What shall we do with the imbecile? is the question for those who send—for us who receive—to ponder. A question that has been fittingly addressed to a national assembly, of national importance, and requiring national legislation and provision, is one to be gravely considered by the whole nation.

Shall we turn these irresponsibles loose to undo the work of the past and redouble that of the future? Surely history would not write our names among the wise. Experience, and indeed every consideration for the individual and for society, points to the absolute necessity of permanent sequestration, and this, too, coupled with every means that science under wise legislation may dictate to stem the torrent of inherited

ill and to forbid the increase of this pernicious element; measures which, freeing the unfortunate from the bondage of passion as well as that of a keeper, would secure greater happiness in permitting greater freedom of intercourse between members of a community.

The colony idea now working itself out will shortly give sufficient data upon which to form an opinion, and, if successful, will doubtless give a practical solution to this problem.

I do believe that under wise direction and national provision, such a colony or colonies might be made almost self-supporting, and also be an encouragement by giving definite aim to the work in the various training schools; and it does seem to me, that these settlements of simple childless folk scattered up and down throughout the land, these victims of the follies and the vices of the past, who must themselves be in a certain sense always children, finding their happiness in congenial occupations and quiet pleasures, would in time have an influence for good greater and more far reaching, because more subtle, than the frown of penitentiary walls. Protected from the world and the world from them, these children of the nation, instead of as now, its standing peril, would be a constant object lesson, at once a reproof and a warning to guide us to that "statelier Eden of simpler manners, purer laws" which the twentieth century shall usher in.

Cicero once said: "We have cultivated eyes." How much it is to be wished that all who have to do with the teaching and bringing up of children could say this with him. Would then rough manners, disorder in clothing, or disorder of any kind appear before the children? Were cultivated ears added to this, and were the cultivation of the eyes and ears a Christian one, what more could we wish. (Translated from the German.)

THE VALUE OF NATURE STUDY IN SENSE TRAINING.

BY E. R. JOHNSTON^V

Assistant Principal of New Jersey Training School for Feeble-Minded Children.

All knowledge of the external world comes through the senses. The nerves of sensation are the only teachers of the brain, and our senses are intensely practical. Only those things with which they come into close contact do they report correctly. As the distance increases the reliability of the senses decreases. The sun and the moon are not what they appear to be. The observation and study of natural phenomena and natural objects is one of the most potent methods of developing and training the senses. Now, as all knowledge comes through the senses, it follows that in nature study we find one of the surest ways of reaching the brain. Every sense must be educated as a faculty and as a function. Not only must the organ be in correct working order, but it must act correctly, to make the proper brain impressions. The training of any given sense not only develops the susceptibility of that sense but of all of the other senses, and also increases the potency of the whole mind.

Prof. Gates, of Maryland, has conducted a series of tests, in which he shows that after training touch, hearing and taste for three hours a day for five consecutive days, he is able to hear a tuning fork (sounded by electricity) at a distance of 286 feet, while before the training he could hear it at but 206 feet. This experiment gave similar results upon others. You have heard of the man who was awakened one winter night by the sound of mosquitoes humming. He sat up in bed and the sound ceased. As soon as he lay on his back again the sound was resumed. Several times he sat up, only to hear the sound

again when he lay down. After some thought he found the cause in a cloth saturated with kerosene, which was bound around his neck. Years before he was accustomed to study, lying on his back. When the mosquitoes annoyed him (he was attending college in Jersey) he bathed his face and hands in kerosene. Urbanschitz has shown that certain colors can be seen more distinctly when certain sounds are made, and vice versa. The claim that the blare of a brass horn makes a brain impression similar to a glare of red, is probably familiar to you all. It often happens that some weak sense may best be strengthened by first developing some other sense.

Nature appeals directly to each of the senses, and to all of the senses, and it is here that the greatest amount of material for sense training is to be found. The leaf, the flower, the chickens, frogs, bees, caterpillars, teem with wonders full of interest and instruction. "So simple, so natural, so true. This is the charm of dealing with Nature herself," says Agassiz. "She brings us back to absolute truth so often as we wander."

Our children too seldom have a chance to understand the connection between Nature's manifestations and their own existence; between plants and raiment, animals and food, stones and metals, and machines, tools, buildings, etc. What is rain to them? Simply water. Of what value is it? What is it for? "To keep out of," one little girl says. Let me quote from George Arnold's "Jolly Old Pedagogue:"

"He taught the scholars the 'Rule of Three,'
Reading, and writing, and history too;
He took the little ones on his knee,
For a kind old heart in his breast had he,
And the wants of the littlest child he knew.
'Learn while you're young,' he often said,
'There's much to enjoy down here below.'"

In our school departments we so seldom get beyond the first two lines, and we, together with educators the world over, have such a hard time to know "the wants of the littlest child."

We are too often trying to teach our children too much. We are arranging courses of study to fit them for lives they are never intended to live. We strive to drag them through a mass of numbers far beyond them. We try to explain intricacies of language and have them draw and explain elaborate maps, and we have them spell words they will never use excepting in the class-room. There is training in all of these things, but we need in our work so much training in the things which shall be of use to our children that we have no time for these. We are in danger of becoming like the public schools, in which an attempt is made to give almost one hundred per cent of the children in the primary departments a foundation for the class of work which less than twenty-five per cent are destined to do. The curriculum of the public schools seems to be based upon the supposition that the pupils shall all go through the high school and college, ignoring the fact that but a very small percentage ever even enter high school, but they leave early to become masons, shoemakers, carpenters, etc., without much basis for that kind of work. We must be the leaders or with the leaders in the needed reform. Intelligent teachers are adopting methods that we have had in practice many years. And yet we are prone to follow the courses of the public schools. We set before the child a reading lesson to be "studied." He repeats the words over and over, and then is told that it means "so and so," and in order that he may understand it better he spells and defines all of the words.

A long line of reformers, Montaigne, Aristotle, Comenius, Rousseau, Spencer and Fröbel, down to the present time, have preached a natural system of education. Fröbel put into practice what was mostly theory with his predecessors. His cry was "Live!" "Learn to do by doing!" The disciples of Rousseau and Spencer, about 1878, turned education into a scientific channel, but Nature was only to be studied by rule. The child was to learn from the teacher. The

"Tongues in trees, books in running brooks,
Sermons in stones, and good in everything,"

only came to the child second hand. For twenty years the fight has gone on against it. We are becoming wiser, but still for too many school children the leaves never rustle, nor the bees hum. The system of Mr. Squeers ("Nicholas Nickleby") was very near the correct educational idea of to-day. Instead of spelling and defining "horse" and then going out to clean it, we believe in cleaning the horse and learning to spell, etc., at the same time—not only "horse" but also brush, tail, hair, etc. "Experience is a great teacher," even if, as Bill Nye says, "A mighty expensive one."

A great many of our children are only in the home-life stage, and many will never get beyond it. One-third to two-thirds will pass through the kindergarten stage into the primary stage, and but a fractional percentage—questionable as to whether they belong with us—will pass into the grammar stage. In the home and kindergarten life the children should have songs and games and play. The words they use are to be made up from what they see and hear, feel, taste and smell. Their life is to be in the fields in summer; near to Nature always.

Teach them through their plays. "Play is the work of childhood." Their play, to us, must mean a proper direction of their thoughts and activities. To the child, it is the working out of his own ideas, his activities, unchecked. One authority says, "The most important function of play is to educate the individual for his life work in a network of social relationship." The need of good attendants is strongly felt when we remember that most of the children's play is under their direction. The teacher who shall guide our children through the labyrinths of play into the regions of ideal work must be as self-denying as Pestalozzi, as wise as Solomon and as patient as Job. Nature's manifestations are the playthings of childhood.

Teach them through their pets. The donkeys can soon be made to mean more than a ride on the caroussel or on the car.

The 'coons and deer are something besides things to feed; the poultry and cattle not merely producers of foods.

Teach them through their gardens. More than three-fourths of our children attending kindergarten and English classes have flower and vegetable gardens. This is their school. Here they receive their lessons in form and number, geography and natural history. Here they learn to live. The foreman wanted to know if we "wanted the earth" when we planned for seventy-two vegetable gardens 4x40 feet, in addition to the plot set apart for flowers. We do want it. Our children need it. Here they plant not only garden seeds, but also seeds of order, observation, experience, etc., which shall surely bear fruit. In the gardens every sense is alert. How the eye brightens at the masses of gorgeous color and the beautiful outlines. What innumerable sounds appeal to the ear. How many things, hot and cool, rough and smooth, hard and soft, and of different forms are to be grasped and held by trembling, uncertain hands whose sense of touch is hardly yet awakened. See the flowers to smell and the vegetables to taste. And *they* have wrought all of this. What difference if they do not know the names of all of the objects presented. We are here training senses; memory follows. Huxley has shown that the appropriate action of an organ precedes its structure. We are to build up by doing. Action, not words, is necessary for development.

For all of this we need teachers—teachers who shall be educated, refined, responsible; teachers born, not made; teachers loving, faithful, talented. Thank God, we have many such engaged in this work; who realize how near they are to God in the eyes of their children, and who can take their children to Nature and Nature's God. They will not only train senses; they will train the moral, mental and physical natures as well. They will build character. They will fit the child for the world in which he is to live.

Why do we not hear more from our teachers at our association meetings and in our journals? V

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EDITOR-IN-CHIEF:

A. C. ROGERS, M. D., - - - - - Faribault, Minn.

ASSOCIATES:

W. E. FERNALD, M. D., - - - - - Waverly, Mass.

A. W. WILMARTH, M. D., - - - - Chippewa Falls, Wis.

F. M. POWELL, M. D., - - - - Glenwood, Iowa.

M. W. BARR, M. D., - - - - Elwyn, Pa.

ALEXANDER JOHNSON, - - - - Ft. Wayne, Ind.

Address: JOURNAL OF PSYCHO-ASTHENICS, Faribault, Minn.

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MINUTES OF THE ASSOCIATION.

The twenty-third annual meeting of the Association of Medical Officers of Institutions for Idiotic and Feeble-minded Persons was held at the Murray Hill Hotel, New York City, May 11-13, 1899. The first session was called to order by the president, Dr. Dunlap of Vineland, N. J. The secretary, Dr. Rogers, announced that the first business was the reading of the president's address. (See page 201, Vol. IV.)

The first paper presented was by Dr. Walter E. Fernald, upon "Paralytic Idiocy."

Dr. Ales Hrdlicka was introduced to the association by Dr. Carson, and, on motion, he was invited to take part in the proceedings.

Dr. Barr related the following case of moral imbecility,

which he thought was of sufficient importance to interest the association:

Dr. Barr: There is a certain boarding house in Philadelphia with about fifty people living there. About three years ago the proprietors were approached by a German deaconess who had found a little child that needed assistance—a girl. She seemed attractive, and they took her in as a part of the family and sent her to school in the city, where she did fairly good work. After a while, mischief cropped out. The boarders complained that things were purloined—fruit, candy, handkerchiefs. Finally, rings and jewelry were taken, and they could not imagine where these things disappeared, they were stolen so adroitly. The child had the run of the house, and was loaded with presents of fruit, money, etc. She is now nine years old. Just before Christmas they found she had been playing truant at school. She could not pass her examinations. In February the house was flooded with water. Every spigot in the bathroom was on. About a month ago there was a smell of fire, and one room was all ablaze. The child was asked, but she did not know anything about it, she said, though a lady remembered that the child had said there was a fire before she could have known it if she had not known it before it was discovered. Seven rooms were destroyed. That night the child said, "If this house had been burned up I should have lost a good home." The lady to whom she said this was attracted by something in the tone, and looking at the child she was startled to see her face. She said she had never seen such a crafty look, and, going out, she said to the lady who had discovered the fire, "This little girl knows something about it, I think." The child was talked to for an hour and a half, and she wept and moaned and groaned and vowed she knew nothing about it. The lady knew that the feeble-minded often will fall into suggestions, and as she left the room she asked, "Did you take my matches to light the fire?" "No," replied the child, unwittingly, "the matches were in the room." She had gathered papers together and placed them

under a writing table, and set fire to them with the hope of burning down the house. When asked why, she said she did not know, that it was in her and it had to come out. She said she wanted to hear the bells and to see the firemen run. They looked into the way the house had been flooded, and found that she had tied the spigots to the door in such a way that when the door was shut from the outside it opened the spigots, and then she had broken away the string. She was brought before the court and sent to the house of refuge. I examined her the other day and found her almost without the stigmata of degeneration. I asked her why she did these things and she said, "just for fun." I asked if she could read, and found she liked to read fairy tales and murders and fires."

A paper, entitled "Cases of Idiocy Without Physical Defects," by Dr. S. J. Fort, was read by Dr. Murdock.

Dr. Murdock: "I take it that Dr. Fort means that the defective children can be divided into two classes, delinquents and dullards. The delinquents are not necessarily dullards; they may be bright, but they are incorrigible children. I have seen many such in reformatories. They are often abnormally bright."

DISCUSSION.

Dr. Carson said that he had found Dr. Fernald's paper most interesting, but he had never given much study to the subject himself.

Dr. Rogers asked what was to be understood by his remark that there was "no heredity."

Dr. Fernald explained that there was no history of insanity, imbecility or paralysis; such as there was showed itself in tendency to inebriety.

Dr. Murdock said that in his institution he had an epileptic, of about 26, whose father had died in an insane asylum of paresis. Among the epileptics there are two where, after a series of spasms, hemiplegia has followed the attack, and this

has been persistent. One case involved the arm, and the other the arm and the leg on the same side. These followed epileptic seizures.

Dr. Rogers told of a boy with chorea whom he had studied with interest to see how he would manage in eating. He had no trouble in striking with a fork the thing he wanted, nor in conveying it to the mouth. When he took up a glass of milk to drink, Dr. Rogers tried to guide his hand lest the milk should be spilled. The result was that the milk *was* spilled. The next time he left the boy to himself and watched him. The boy put his elbow on the table, his chin on his hand, fixed his head, carried the milk to his lips and drank it without trouble, and then put the glass down on the table. It showed the extent to which will power could control action in such cases.

Dr. Fernald: Drs. Bullard and Brackett, of the Children's Hospital, in Boston, in those cases have operated by cutting the rigid tendons, not only with the effect of relieving the disagreeable spasm, but in a number of cases with the apparent effect of greatly improving the mental condition. There used to be a notion that these wounds did not heal well, but with aseptic surgery there is no reason why it should not be done. In these cases of contracture, much can be done by massage and manipulation with warm baths and persistent passive movement. Several cases to which I have referred have been taught to walk. At first we assist a good deal, with some passive motions, moving their legs and accustoming them to be on their feet.

Dr. Carson: When I was at Lancaster, England, in 1890, visiting the asylums for imbeciles, Dr. Shuttleworth pointed out to me several cases of what he called "athetosis" that would answer to some of these cases described by Dr. Fernald, and he was training them by giving them very close work, like lace making and hand weaving. Dr. Shuttleworth claimed that he could get the best results in such cases by giving them

something to do that required very close attention, and it was surprising to see what fine work they accomplished.

Dr. Rogers: Definite action of the will again.

Dr. Dunlap: Would Dr. Fernald undertake interference if the cases were not well developed?

Dr. Fernald: Not unless there is a painful contraction. In many cases there is a clasp-knife rigidity. It is impossible to separate the thighs by force. In those cases separation by surgical interference is a great relief; it makes the children more comfortable when sitting or lying down.

The Chair: There are many cases in every city similar to that described by Dr. Barr.

Dr. Barr: That is evident from the establishment of special schools for special children. Since these were established, a great many feebly-gifted children are coming to me. The teachers have suffered at the hands of these children, and the authorities are not going longer to mix the unmixable. The weaker minded are therefore coming to me, and I am able to raise the standard of my school very much.

The Chair: Is there a public school for these special children?

Dr. Barr: Yes; there is a very good one in Philadelphia.

Dr. Fernald: In Springfield and in Boston they have established special classes in the public schools, and I think also in Cambridge, and I am sure within a few years they will exist in many Massachusetts cities and towns. That is going to modify the problem of teaching the feeble-minded. I remember that Mrs. Brown ten years ago predicted this very thing. It seemed a long way off at that time, but it is coming fast.

Dr. Carson: I think work of that kind is organizing here and in Brooklyn.

Miss Bancroft: We are going to establish one school and see what can be done, and whether it is better to try the day schools before we can establish boarding schools. The subject is up before the civic club. I think they are going to try and

start a day school, but I think such children ought to have continual training. I should like to know whether it is believed that day schools alone can be successful.

Dr. Barr: They are successful in London, and the Philadelphia school so far is successful. I think there are some in Rhode Island.

Dr. Hrdlicka was asked to speak.

Dr. Hrdlicka: It seems to me that very great care should be exercised in this connection not to do harm while we are trying to do good. The matter should be under the supervision of qualified physicians, and should not be left to teachers. If you take a child from a public school and put him into a school established as a separate school for a special class of children, you may handicap him for life. In the first place, you remove a very considerable amount of stimulus which is present in the public school. The child loses the value of the influence of imitation. Children are very liable to imitate others, and the inferior child who is placed in a public school with cleverer children will, in many cases, imitate those more advanced, and in that way will make progress. In the second place, by removing a child from the public school you may perhaps spoil his reputation and place a blot on him which will stay all his life, especially in a small town, where he is well known and where he may have to live the rest of his life. Such special institutions will always be looked upon as institutions for inferior children. In consequence of this, these removals should be under the careful supervision of a qualified physician, and no child should be placed in a separate school unless he is found to be inherently, and to a large degree irreparably, mentally inferior to other children. It has been observed in Prague, Matiegħa, and I have found the same thing here in New York, that many children who appear to be dullards are only so because of prolonged mal-nutrition. Improve their nutrition, and the children rapidly improve mentally, so that they seem as bright as others in some cases. The dullness was not the result of inherent feebleness, but

was acquired through the bad nutrition. The mal-nutrition depressed and retarded the brain functions. Here again the physician should first direct with regard to the nutrition, and only after there has been faithful trial of improved nutrition and the child is still a dullard should he be removed to a separate school or institution.

There is another point. If you simply place these retarded or dull children in a special school for a part of the day and then allow them to go out at the end of the school hours to their old homes, associations and environments, you will not achieve much of value. They should be supervised the whole day and night. At the same time, they should be placed under the best hygienic conditions and receive a systematic physical training. Hence such special institutions should not be simply branches of the day school, but should rather be homes and supervised constantly by a physician. Then, I believe, a great deal of good could be achieved.

With reference to children of kindergarten or still lower age, such as were stricken with paralysis or other serious diseases, and who have developed imbecility or partial idiocy, it seems to me that when these children can be reached soon they should be placed at once in some special institution. Much more good could be accomplished than by allowing such individuals to stay at home, and, only years afterwards, when the mental defect has become stable, sending them to a special school for dullards.

One of the gentlemen who spoke before me referred to the case of a girl who had done a great many abnormal things, but who did not show any physical abnormalities. Physical abnormalities are not looked at in a proper light as yet, even by some men who practically occupy themselves with this subject. The subject is still very difficult to deal with. There are several classes of abnormalities—those inborn, which in some cases increase subsequently in size and character, and those which the child has developed during life. The latter may again be divided into two classes—those which develop

spontaneously, and those which are the result of some disease, especially paralysis. The congenital anomalies are often of small importance, unless they are met with in certain groups. If you examine a child and find that he has anomalies of the ears or teeth or head or limbs, I assure you in many cases you will be disappointed if you think the child is a degenerate on this account. He may be quite, and even exceptionally, bright, and mentally normal in spite of such a mark or marks. Some of you may know that Bichat, the great French anatomist, had a very asymmetrical head. Walter Scott had an abnormal head also, and the same has been true of other remarkable men. There should never be too much importance placed on any one anomaly, or even on a group of them. On the other hand, if a child has no abnormality visible, that is no sign he is not a degenerate. He may have no anomaly on the surface of the body, but may have many and important ones inside. If you were to examine the brain, the bones, the liver, etc., you might find many abnormalities which do not show outside. So, if a child seems to be a typical degenerate case, and yet does not show any abnormal sign on the surface, you need not modify your diagnosis on that account.

The following committees were announced by the chair:

Time and Place—Alexander Johnson, Dr. Anthon, Dr. Keating.

Organization—Dr. Knight, Mrs. Brown, Dr. Fitzgerald.

Journal—Dr. Carson, Dr. Murdoch, Mrs. Seguin.

Program—Dr. Fernald, Dr. Barr, Alexander Johnson.

Mr. Alexander Johnson invited the association to meet in Fort Wayne next year.

The secretary announced that invitations had been received to go to Washington, D. C., to Chicago, to Polk, Pa.

The chair said there was a standing invitation to go to Vineland.

On motion, it was voted that a committee of three should be appointed by the chair to present the names of new members.

Dr. Knight moved that Dr. Rogers should be made the chairman.

The chair appointed Dr. Rogers, Dr. Knight and Dr. Barr to serve on this committee.

Adjourned at 5:50 p. m.

SECOND SESSION.

The second session was called to order by the president at 8 p. m.

A paper on the "Self-supporting Imbecile" was read by Mr. Alex. Johnson, superintendent of the Indiana school for the feeble-minded.

DISCUSSION.

Dr. Tarbell: I can add but few words to the paper just read, which is by far the most vigorous and pointed of any I have heard upon this branch of the subject since I have been interested in the caring for adult imbeciles. The one point I would emphasize, however, is that we should never lose sight of the fact that these adults must be carefully trained before they can approach the degree of self-support which Mr. Johnson's optimistic faith has pictured for us. In Massachusetts we are so fortunate as to have secured some 1,700 acres of land, in Worcester county, for about ten dollars an acre, and we propose to see what can be done in making the adult trained imbecile contribute toward his own support. We made no promises to the legislature, except that the best should be done, and after careful consideration they gave us the money to buy the land. There is everywhere a pressure for the public care of the adult imbecile, and I believe it will henceforth be the largest, if not the most important, part of our work. There is no reason why the females should not

work upon the land as the peasants of Europe do. In Christiania, in 1888, I saw female imbeciles profitably at work upon the grounds. We do not propose to change our training and school department. It is enough at present to transfer the trained adults to the colony. We have not yet arrived at definite ideas of what our building shall be, but I think we shall decide to build upon our large tract of land a village of small, simple, one- or at most two-story frame or brick cottages; low, in order to permit quick and easy egress, and far enough apart to avoid the danger of extension of fire. The details are still undecided, though the general plan was laid down three years ago by Dr. Fernald in our forty-ninth annual report for the year 1896.

Dr. Rogers said that it takes some effort to convince legislators of the advantage of these small buildings for colonies. He thought it unnecessary that they should be fireproof. Colonization in cheap buildings is the best thing to do. For the higher grades, there must be better structures where they are massed in large numbers, but the only solution of the problem of the inexpensive care of the adult imbeciles is in simple houses in colonies.

Dr. Keating: I am glad to hear that cheap buildings are the correct thing. In Maryland I can get money for maintenance, but not enough for buildings. We had \$1,500 given us and we invested that in a laundry. We have saved enough for three cottages. They were built with one stairway and a fire escape outside, and we use that as a back stairway. We are working on the idea that Mr. Johnson has presented—farming, etc. Our idea is that you do not want to start large industries and send goods outside. We want to do something to make these imbeciles self-supporting, so we have adopted farming and gardening.

The Chair: Does the law allow you to use money given for maintenance for buildings?

Dr. Keating: Yes; it is not specified. It is turned over

to the trustees of the institution, and they can do with it as they please.

Dr. Tarbell: When I visited a certain European institution, the superintendent there talked about the profitable occupation of the boys, but I did not see any till I came to a room where forty or fifty were making cigars. I supposed I had struck the keynote to their support, and I asked how many they made, the cost, and how much profit there was. He hesitated a little, and then said, "Oh, we don't sell many of them; the boys smoke them."

Mr. Johnson: I do not want Dr. Keating to think that for the home place we want cheap buildings. For certain grades the buildings must be costly, especially in plumbing. I have not seen any institution that seemed to me to have nearly enough plumbing. We shall have fifty per cent more plumbing in our new building than in our present place, and we have already nearly double what I have seen anywhere else. Those things are expensive. It is always expensive to take care of the low grades, but we owe it to ourselves and to the state to do it well. But you can save in care-takers. The high-grade imbeciles make better care-takers than you can hire outside—always under supervision. The per capita cost of the training school ought not to be reduced; that is not the place to save. We want better facilities for that part of our work. The middle grade are the most available for work.

A paper entitled, "The First Steps in Thought Training," was read by Miss Bancroft.

DISCUSSION.

Dr. Carson: My own idea is that, as a rule, more children are benefited by being associated than by being kept apart, but I must confess that there are some who would be helped more by close individual training, but in state institutions that is impossible.

Mr. Johnson: We make a mistake in keeping many chil-

dren in school too long and taking them farther than they will have any need for; also in having our hours for school too long. Three hours is enough for school, I think. Our average time for our children is now less than two hours. By lessening the time we can give more individual instruction. We formerly had classes of sixteen or eighteen. Classes of the same grade now have only six or eight in them. Many of our children are now out of school. They are getting other things better than school for them. This may be heterodox, but it is the result of experience. In private institutions it may be possible to give an amount of individual instruction which cannot be done in the state institution.

Miss Bancroft: We have our children in classes. Our school hours are from 9 to 12 and from 2 to 4, but we change the work. In the afternoon we have elocution and manual work, etc., and we change the manual labor from day to day.

Dr. Tarbell: Dr. Fernald acts on that principle; the children are in school about two and a half hours a day. The school work is changed for industrial work.

Dr. Carson: That does for children from 12 to 16; but what about those from 7 to 12?

Dr. Tarbell: Exactly the same.

Dr. Fernald: The boy who learns to plow a straight furrow is receiving sense training as well as the boy trained to paint a straight line. I have been impressed by seeing that in all institutions the same grade of children are capable of about the same development, and we are apt to think that our methods of training have had more to do with it than is the case. I suppose that every human being at birth has certain possibilities and potentialities. We, as superintendents, can predict to the mother with a great deal of certainty the possibilities of improvement, and we are not very often disappointed by having them develop farther than we had predicted.

Mr. Johnson: It has been my experience that when I have thought that I had a new idea, to discover that Dr. Fernald had been practicing it four or five years. We are using the

Bancroft object charts extensively, and last year we used the pictures of cows and other creatures; but when I got to Waverley, I found they brought a living cow into the presence of the children, and milked it there as an object lesson. If I had cows at the home place I should repeat that lesson with my children.

Dr. Fernald: We take the goat, the sheep and the chickens into the schoolroom in a portable pen or cage. We have animals in pens in the playground—a coon, a fox; and we had a bear, but he died. He also was taken into the schoolroom. He was compared with pictures of bears, and the teacher read the story of the "Three Bears," and it never sounded so well. For stimulating the powers of attention and observation of the children there is nothing better. Most children have a natural fondness for animals.

Miss Bancroft asked if there could not be some connection established between this association and the National Educational Association.

Mr. Johnson said he thought it would be a good thing for superintendents and teachers to attend the meetings of the National Educational Association, and it would be a good plan to have papers on the care and education of the feeble-minded read at their sessions, but he did not think there could be any closer relation.

Dr. Rogers, for the committee on new members, reported the following names of persons, who were immediately elected: Samuel Lindsay, M. D., Philadelphia, Pa.; H. F. McDowell, M. D., Polk, Pa.; F. S. Warren, M. D., Faribault, Minn.; Lucy A. Wheeler, M. D., Faribault, Minn.; A. R. T. Wylie, Faribault, Minn., active; R. Osuga, Tokyo, Japan; Dr. Ales Hrdlicka, New York, N. Y.; Alice Mott, Faribault, Minn.; Laura Baker, Northfield, Minn., honorary.

Adjourned at 10:20.

THIRD SESSION.

FRIDAY, MAY 12, 1899.

The association was called to order at 10 a. m. by the president.

A paper on "Sporadic Cretinism, with Thyroid Treatment," by Dr. Murdock, was read.

DISCUSSION.

Dr. Carson: In our use of the thyroid treatment we have not kept it up continuously, but for a few weeks or months at a time. We stop its use occasionally for a week or two, sometimes from choice, sometimes from necessity, especially when we see the patient getting nervous or the stomach becoming irritable. I am now satisfied that in our first use of the extract our doses were too large, that as much benefit can be accomplished by small doses, and that, too, with fewer unpleasant symptoms. We have a girl, now thirteen years of age, under treatment, who was admitted only a few months ago. Upon admission she was very fleshy and her abdomen very protuberant, but she has already lost about twenty pounds in weight, and her abdomen has receded very materially. She has also grown over an inch in height, moves about much more easily, and appears in every way brighter and happier. When first placed under treatment these cases usually lose flesh rapidly, but after a time the weight again increases, and they may even become heavier than before treatment was commenced. The gain in height acts as an offset to the ultimate gain in weight, and renders the latter less prominent. A physician in Syracuse had a child brought to him with sporadic cretinism when she was but two years of age. She presented all the characteristic physical appearances, and was also idiotic or feeble-minded. He placed her under the thyroid treatment, and he now claims that the

child is normal, but the treatment has to be continued. He still gives her small daily doses of the thyroid, and thinks it will be necessary to continue the treatment as long as she lives.

The Chair: Can you call a child cured if the treatment has to be pursued all his life?

Dr. Carson: That depends upon what one means by being cured. In one sense, yes; but really the cure, if one calls it such, is only a benefit or a greatly improved condition effected and maintained by the treatment.

Dr. Rogers: Is there anything to indicate from the treatment that the thyroid gland increases? And, because it does not, is not that the reason why the treatment has to be continued?

Dr. Carson: So far as we know, the thyroid gland does not increase, and, unquestionably, it is owing to the absence of the gland and the absence of its function in the human economy that the treatment has to be maintained in these cases. When the thyroid gland is absent or its function destroyed, a condition of myxoedema in the adult, or sporadic cretinism in the child, is the result. Whatever else may be the function of this gland in the human system, there are two things we have learned; one is, that it supplies something to aid in the growth of the long bones of the body; and the other, that it aids in the development of the intellect. The introduction of the thyroid into the system by way of the stomach seems in a large measure to compensate for the absence of the gland. In cases of children benefited by the treatment, if the treatment should be permanently suspended the patients would gradually again take on the physical appearances of sporadic cretinism and relapse into their former condition of mental hebetude.

Dr. Fernald: One of the cases reported by Dr. Murdoch is remarkable. She is a charming little girl. She is in school and is learning to read and write, and is an exceedingly attractive child. The other case mentioned came to us about

a year ago—a boy utterly unable to turn over or to change his position in a chair. He had a very large and pendant abdomen. His tongue was swollen and hung down on his chin. He was about as repulsive and helpless a child as I ever saw. He did not even turn his eyes from side to side, and was a most unpleasant looking object. Now the abdomen has gone back to the proper shape, his tongue is in his mouth, the mouth closed, and he is interested in what is going on. We have not allowed him to walk, because he lost weight so rapidly, even with small doses, that it did not seem safe to allow him to try his legs. He uses his hands freely and quite intelligently, and he is playful and affectionate, and, I think, promises to be a successful case—as successful as the other.

Dr. Barr: Dr. Telford Smith showed me his cases several years ago, and I do not know when I have been so impressed by medical treatment. He had taken the most accurate photographs, but they did not give any idea of the improvement of the children. It was perfectly marvelous. Dr. Thompson has a series of photographs, but I do not think his results are quite as good. I have not been able to try the thyroid treatment because the parents, with one exception, have not been willing. I had one girl of ten, absolutely helpless in every way. Her abdomen was tremendously pendulous. I thought she might be benefited, but her mother would not hear of it. They took her home and gave her, after a while, to a doctor who gave that treatment. After eighteen months the mother saw the child, and it had grown three and a half inches, and the improvement in her condition was marked. They stopped the treatment and the child suddenly died in spasms. The mother is a woman of unusual intelligence and very well educated.

Mr. Johnson: I think we must have had more than our share of cretins. We have had three. The first was a girl who was eighteen when the treatment began. She did not increase any in height. Her hair and skin changed, but the

most remarkable result was the mental change. We had supposed that she was entirely deaf. She had never spoken that we knew of. Her hearing returned, if it had been lost, and she began to say a few words. Then she developed phthisis and died after a short illness. A day or two before she died she spoke several connected sentences, and half an hour before death she called out "Mamma" two or three times. The night nurse who was on duty had never heard her speak before, and she came over and reported a miracle to me—that Lucie Schmidt had called her "Mamma." Our other cases are a boy and a girl. The boy has not grown very rapidly; the girl has. She was eight, and is now more than ten. She has grown something like eight inches in two years and a half. Her hair has become soft and silky, and her skin normal. Her fingers are more than double their former length and are longer than normal, for her size. Before the thyroid treatment she had never stood erect, and never spoken. She is beginning to talk, and understands a good deal, and is going to school. The boy is not quite such a typical case. His hair has become normal, but his skin is still rather yellow and rough. He is becoming bright, and has developed a mischievous disposition. He goes to school every day. We find the treatment must be continued. We have had to stop the thyroid with the girl for a few days at a time, because of slight gastric disturbance, inducing irritability. She now takes two grains at a dose three times a day.

Dr. Keating related the case of a child—a dwarf—whose tongue protruded, and which took no notice of anything. If spoken to it would turn its eyes slowly. It took no notice of other children. It was in the hospital with bright children. Dr. Atkinson diagnosed it as cretinism, and put the child under this treatment, five grains three times a day. In two days the child's fever went up, the child became irritable and they thought they were going to have a serious result. They stopped treatment for a day or two, and then started with one grain three times a day, and the child began to improve.

The skin became normal, the oedema of the side began to disappear, and the other side, which was rather atrophied, began to approach a normal condition, and the child began to be bright and to take notice of the other children. She would play with them, and though her speech was thick, she began to talk. She was kept ten months under treatment, and when her parents took her away she was very much improved. Dr. Hill, who has had much experience, says that when the treatment is discontinued the patients go back; it must be kept up.

Dr. Murdock: The thyroid gland is a body that we do not know much about, but we know that it manufactures a substance which is essential to the normal growth of an individual. If the individual is deprived of that substance his growth will be retarded mentally and physically, and we know that by feeding thyroid to the individual we can bring about the desired result, as though the gland were performing its proper function. I think, therefore, we are justified in giving it a proper place in our methods of treatment.

Dr. Fitzgerald: We have a low-grade cretin, unable to walk or talk, and who did not recognize things and had no use of his legs. Since he has been under treatment he has grown several inches in stature, runs about the hall, plays with a rubber ball and entertains others. He has a little cart and runs up and down with that, plays games, talks, and has his playmates among the other inmates. We have at times been obliged to discontinue the thyroid treatment on account of the marked emaciation that accompanies the fever, but that he would return to his former condition I cannot believe. Although there is a marked condition of apathy when the thyroid is discontinued, still we never discontinued long enough to let the patient return to his former mental condition. The change in that child was simply marvelous. We had not made any special notes about the case till we heard that Dr. Murdock wanted statistics. We feel that we are justified in continuing the treatment indefinitely. The advantage is not only for the

child himself, but to others. He is now twenty-one and one of the marked things about him is that he has had his first teeth and they have disappeared and he has now new teeth. His hair has changed completely, and he is getting a beard within the last year.

Dr. Carson: Our girl is quite bow-legged, but she gets along as fast as anyone. She really makes a run now and then.

Dr. Fitzgerald: It would seem as though the development had been too fast to give rigidity.

Dr. Rogers: Would not that suggest the need of special diet?

Dr. Fitzgerald: Unquestionably.

Dr. Barr: Mr. Johnson spoke of the child that brightened up just before death. We had a child who had always been mute, and just before her death she said to me, "Dr. Barr, I am going to die and see my mother, who is in heaven." She kept repeating that till she died. I have noticed several times that before death some of the children have brightened up, and sometimes have said very clever things.

Dr. Carson: That occurs when they do not die. We had a case in our institution—a boy who had been there a number of years and had never been known to speak a single word. All at once he put several words together. It is a fact that in cases of profound dementia, suddenly those cases can be aroused to speak. I recall a case of a man picked up on the roadside and kept in a county institution a good many years, who was afterwards brought to the asylum and kept a number of years, who never had spoken a single word. While he was under the charge of the county, they never could find out where he came from, nor what his name was—not a word. One day, as I was passing through the wards, I jumped on him rather suddenly and struck him on the shoulder, and said, "What is your name?" and he replied in a German tone and gave me a name. I put the name down on the books. He

remained several years, but I never knew him to speak again. Such cases do not always speak just before they die.

Dr. Rogers: I remember a low-grade case in an institution, that had never said a word. He was teased a little by the other children, and one day as he was about to sit down they pulled the chair out and he sat on the floor. The boy turned round and called them something that could not be repeated here, enunciating it as well as anyone could. He was never known to speak afterwards.

Dr. Carson: He did not die then, either?

Dr. Rogers: No.

Dr. Fitzgerald: I had a case of catalepsy under my care four years—a very pretty young girl who lay there helpless, and was known among the nurses as "the dead woman." She had to be fed with a tube, and had never been known to utter a word or to show any sign of recognition of any one. She developed tuberculosis, and one night the nurse came to me saying that the dead woman had waked up. We had a night nurse in the hospital department, and she had been there working all the time that I had been in the service there. She had constantly observed this dead woman. That night, when the lights were turned down low, she happened to look round, and this young woman was sitting up in bed and beckoning to her. The nurse was terrified and made a hasty exit to call for other nurses. That was the commencement of dissolution. The girl died within six weeks, and before her death she again relapsed into the cataleptic condition, but immediately before her death she regained consciousness, recognized the nurses and myself and every physician by name, and knew the patients who had been in the room with her, although she had always lain with her eyes closed. It was a marvelous case that the girl was cognizant all the time of what was going on about her and could give no kind of recognition, except that tears would occasionally run down her cheeks. I have had several other cases of catalepsy, but that

was the most interesting, for she was four years under my observation.

Dr. Barr related a case of a boy who had been in the manual training school of Philadelphia, where he did excellently in his handiwork. His class could not keep up with him, but he had to spend more time on his lessons than they did. Suddenly, last spring, his physical and mental powers broke down; he was an imbecile of the highest grade. For months he was very stupid. One night he sent for me, and I found him unusually bright. He had had trouble in school over the pons asinorum, but that night he said he thought he should have no trouble with it then, if he had pencil and paper. He told me a great many things he had read, and we argued and talked a long while. Then he said, "I do not think the end is far off, and the sooner it is here the sooner I will rest, and I am very tired." He closed his eyes, and in half an hour he was dead. I had never seen him in such good mental condition as that evening.

Dr. Fernald: Triumphant deaths are apt to occur with tuberculosis. It has been said that no one ever died a triumphant death of a disease below the diaphragm.

Dr. Carson: There is sometimes mental exhilaration with other diseases besides tuberculosis.

A paper on "The First Principles of the Education of the Feeble-Minded," by Mr. C. M. Lawrence of Fort Wayne, was read by Mr. Johnson.

Dr. Fitzgerald said the paper just read was an excellent one, and he hoped it would be printed in the minutes.

Dr. Rogers said that it was difficult to get good material for the Journal that would be helpful to teachers.

On motion, it was voted that the paper be turned over to the editorial committee.

On motion, it was voted that the secretary should print annually and mail to each member a list of all the members of the association, with the postoffice address of each.

Committee on Journal recommends same corps of editors,

viz.: Dr. Rogers, Dr. Fernald, Dr. Wilmarth, Dr. Barr, Dr. Powell and Mr. Johnson.

Report adopted.

Mr. Johnson reported from the committee on time and place. The committee recommended the acceptance of the invitation to meet in Polk, Pa., in 1900.

The report, on motion, was adopted, after some debate, in which Dr. Fernald and others advised meeting in places apart from institutions.

Dr. Murdock thanked the association for accepting the invitation to Polk.

Mr. Johnson made some facetious remarks about changing the name of the association to something shorter.

Dr. Rogers said that the length was embarrassing, but it did not seem best to change it till they found a better. The same was true of the name of the Journal.

Resolved, That a committee be appointed by this association to secure, if possible, the appointment of a like committee from the Medico-Psychological Society, the Medico-Legal Society, the Prison Congress, the American Bar Association, and the Conference of Charities and Corrections, and such other organizations of recognized standing as such joint committee may deem advisable, and to secure the co-operation of such committees in investigating the subject of the proper limitations to the eligibility to marriage, and to examine the advisability of modifying legislation accordingly, and report the result of their findings to their respective bodies.

Dr. Rogers: I have given this matter some study and have talked with others who have also paid attention to it, and my conclusions are that something ought to be done in the way of a modification of our marriage laws, but the problem is an exceedingly difficult one. It is very simple on the surface, but very complex when carried into practice. I believe that a movement of this kind with committees from these various bodies might result in a report that would be of value to legislators.

The motion was seconded and voted unanimously.

On motion of Dr. Knight, Dr. Rogers was elected chairman of the proposed committee.

On motion of Dr. Keating it was voted that the rest of the committee should be appointed by the chair.

Adjourned at 12:30.

FOURTH SESSION.

The fourth session was called to order by Dr. Dunlap at 2:30 p. m. A paper by Miss Harriet Skinner of Lakeville, Conn., was read by Dr. Carson.

A paper on "Nature Studies," by Mr. Johnston of Vineland, was read by Mr. Johnson.

Dr. Fernald: I was much pleased with Mr. Johnston's paper. I think he stated a good many facts in a bullet-like form that will be apt to stay with us.

Mrs. Seguin was asked to speak.

Mrs. Seguin: During the last two years I have introduced medical gymnastics. Before that we had general gymnastics a number of hours a day, but I saw that the children needed something special. I secured a teacher who was a graduate of a school for medical gymnastics in New Haven. We began by measuring all the children. After that our physician gave each child an examination, to determine whether any special condition of the heart or lungs required treatment. Out of our twenty-two children twenty have been working in the gymnasium. We found four or five with spinal curvature, and some had one leg shorter than the other, etc. We are trying to correct these difficulties, or at least prevent them from becoming worse. We measure the children every three months for comparison. We have exercises where they all come together after they have worked separately.

Q. How long do they exercise?

Mrs. Seguin: Our periods are divided into twenty minutes each. The teacher of medical gymnastics never works with but one child at a time. An orthopedic surgeon comes twice a year, and we have had good results from that. Our methods may not be practicable in a large institution. We have eleven teachers and twenty-two children.

The teacher of medical gymnastics in Mrs. Seguin's school, Miss Rachel P. Barker, was asked to speak.

Miss Barker: I have been much surprised at the improvement in these children. I knew nothing about this class of children before I began work with them. I think the work I give them helps them mentally, especially the quick work. When I began they were very slow about taking commands, and they have improved remarkably in that respect.

Q. What text-book do you use?

A. Dr. Bradford Lovett's Orthopedic Surgery.

Q. Where did you study?

A. At Dr. Anderson's training school in New Haven.

Mr. Johnson: We ought not to be satisfied to leave any child without some such effort as has been described. We had a paralyzed girl who was epileptic, who had been confined to a wheeled chair for two years, and by the use of massage she was walking within two months and she walked till the day of her death. About two years ago I was dissatisfied with the large number of round-shouldered girls, and I got Mr. Johnston to organize a series of exercises for them. From seventy-five to a hundred girls have instruction by the use of wands, dumb-bells and poles twenty feet long. The brighter ones have hold of the ends of the poles and the arms of those not so bright have to go too. We have to do things in a wholesale way, but we get some good results.

Dr. Horton was invited to speak.

Dr. Horton said that he had come at the suggestion of Miss Bancroft. He was specially interested in aural massage. He was also interested in what is known as osteopathy, the value

of which we have scarcely begun to estimate, said Dr. Horton. There is a lot of what may be called unscientific work in connection with it, but there is also that which is worthy of careful study and observation. In the treatment of the deaf there has come within the last seven years a new feature known as aural massage, something after which every aurist reached. Dr. George H. Taylor for years made an effort to secure the massage of the ear, but he did not accomplish it. It was, however, accomplished by a Washington physician since dead. In connection with that came the study of musical application. The work began with irregular vibrations, and then with a study of regular tones—musical tones. Studies have been made with reference to the physiological effect of certain tones in the treatment of the throat and larynx. That suggested the effect of tones on the hearing, and I found that certain persons were susceptible to certain tones, as b flat, e flat, or whatever it might be. In order to train a child along a certain line, it is a good thing to have the child listen to certain harmonious vibrations, and it is surprising how a child will reach out and grasp after tones which are pleasant and harmonious. Children in the public schools who are well trained in music will endure anything rather than be turned out of the music class. They would rather take any other kind of punishment as a means of discipline, than lose the fifteen minutes of music in the morning.

A paper on "Psychology," by Dr. Wylie, was read by Dr. Rogers.

Dr. Rogers asked that Dr. Hrdlicka should be invited to speak.

Dr. Ales Hrdlicka: Examinations of a psychological character are difficult, and should be conducted with great care. There are many circumstances which have to be taken into consideration in conducting such examinations. In investigating the taste, we find in some cases that a child does not know what a particular taste is. He may really feel the difference, but may not be able to express what he feels. It is a lack of

knowledge, not of feeling. It is difficult to distinguish between the two. Again, as is very often the case, the feeble-minded child may have teeth and mouth in bad condition, and unless you have the teeth and mouth cleansed, you cannot expect satisfactory results. There is still another thing. If you test just before meal time you will find more acute taste and appreciation than after a hearty meal. Besides this, there are certain idiosyncracies in children. They have a taste for things sweet or things bitter. Another point, if you give a child a piece of sugar and he can see it, he will call it sweet, and it is hard to know whether it appears to be sweet or really is so to his taste. You might give him saccharine and he might not know whether it is sweet or not, because other senses do not aid him in differentiating the substance. Similar difficulties are met at all the examinations of the other senses. Nevertheless, a good deal can be obtained if the examinations are conducted with caution, and if the children have been prepared to understand the things which we require from them.

As to the work which I have been doing, and which the association wishes to hear about, I will not spend much time on the subject. I have been devoting myself principally to making physical examinations of different classes of normal and abnormal children. My work was in physical anthropology mainly. This can hardly be looked upon as an independent science; it is a combination of psychological, physiological and anthropometric investigations. The examinations are made on different classes of individuals and the results are compared. My latest work has been in the New York Juvenile Asylum, and among colored children. The results of the examinations of 1,100 children, 1,000 white and 100 black, have been published. The study contains special reference to the feeble-minded. We are able to trace the work of repair of deficiencies which nature or disease has left on the children, and are able to understand the subjects of degeneration and regeneration a little better.

The committee on organization reported, through Dr. Knight, the following names of persons, who were unanimously elected: Alex. Johnson, president; S. O. Garrison, vice president; Dr. A. C. Rogers, secretary and treasurer; Mrs. Isabel C. Barrows, official reporter.

Mrs. Mary C. Dumphy, superintendent at Randall's Island, reported 445 feeble-minded and idiotic children on the island, about 200 of the former. We do a great deal of work, such as making baskets, shoes, tinware, clothing, all to be used there. The feeble-minded are kept employed. We have instructors in all branches. Some of the boys work on the farm and in the garden. A report of our work and of the institution is published annually, and can be had at the city hall at the city record office.

- Q. Do you have trouble in retaining teachers?
- A. No.
- Q. How many have you?
- A. About twenty-five.
- Q. Do you have both boys and girls?
- A. Yes.

The committee on program reported, asking for further time. On motion, it was voted to extend the time in which they might report.

The secretary, Dr. Rogers, asked the members to send synopses of their papers in advance for aid in making up the program.

The chair announced that Dr. Knight and Mr. Johnson, with Dr. Rogers, would constitute the committee to study the marriage laws and to secure co-operation from other societies.

TREASURER'S REPORT, 1898-1899.

Cash, Dr.

Balance on hand (Journal of Psycho-Asthenics, Vol.	
3, No. 1, Page 42).....	\$88.58
To cash dues.....	109.00
To sale Journals, bound copies proceedings, and cash	
—advertising	227.80

	\$425.38

Cash, Cr.

By printing and engraving.....	\$315.74
By stenographic reports.....	35.00
By books, postage, express, exchange, etc.....	15.59

	\$366.33
Balance on hand.....	59.05

	\$425.38

After a few remarks by Dr. Rogers on the necessity of members assisting the Journal by means of papers, reports, and the securing of advertising, the association adjourned to meet at Polk, Pa., at the call of the executive committee.

Journal of Psycho-Asthenics.

VOL. IV.

DECEMBER, 1899.

NO. 2.

INVESTIGATION CONCERNING THE WEIGHT AND HEIGHT OF FEEBLE-MINDED CHILDREN.

BY A. R. T. WYLIE

The height and weight of all the children in the Minnesota School for Feeble-Minded were taken in their ordinary school dress (shoes being on). The height was measured in millimeters and the weight in pounds read to quarters.

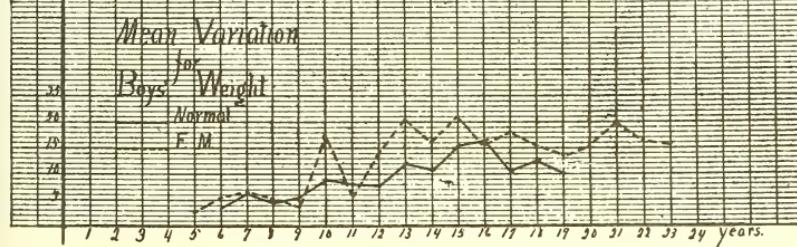
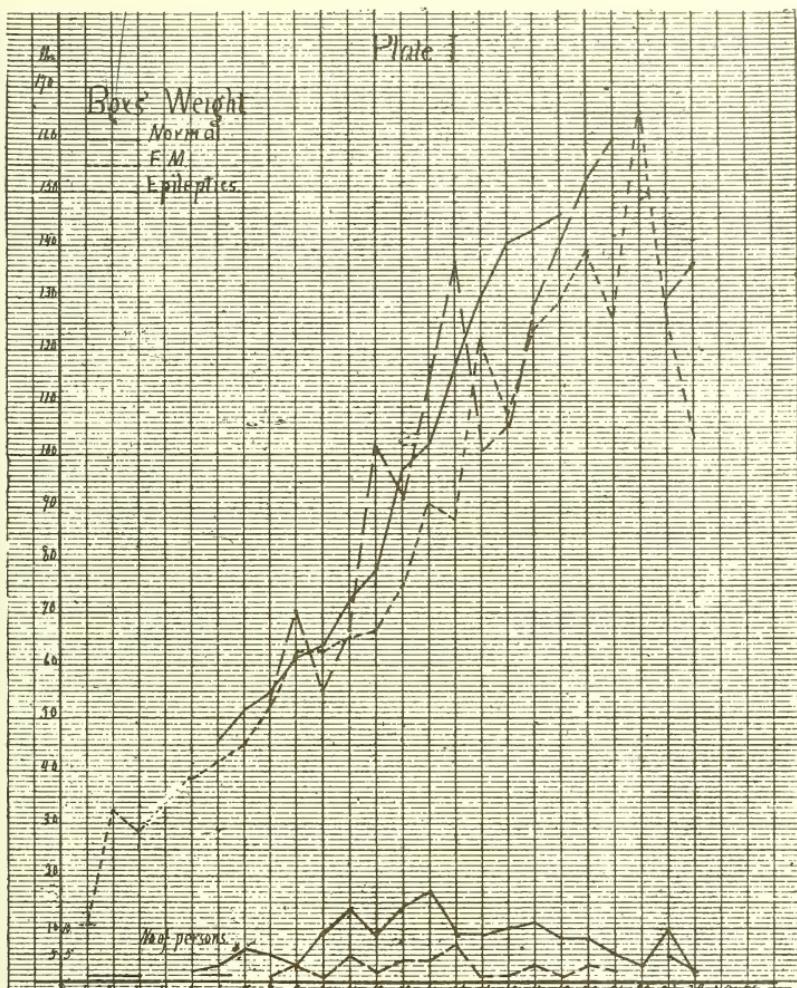
The object of the investigation was to find out to what extent, if any, the feeble-minded child differed from the normal child in these respects. For the normal, the results obtained by Gilbert, in his measurements of the Iowa school children, were taken, as found in "Studies in Psychology," Vol. I., University of Iowa. These he found differed in no important respects from measurements made on larger numbers of school children in Boston, Worcester and St. Louis.

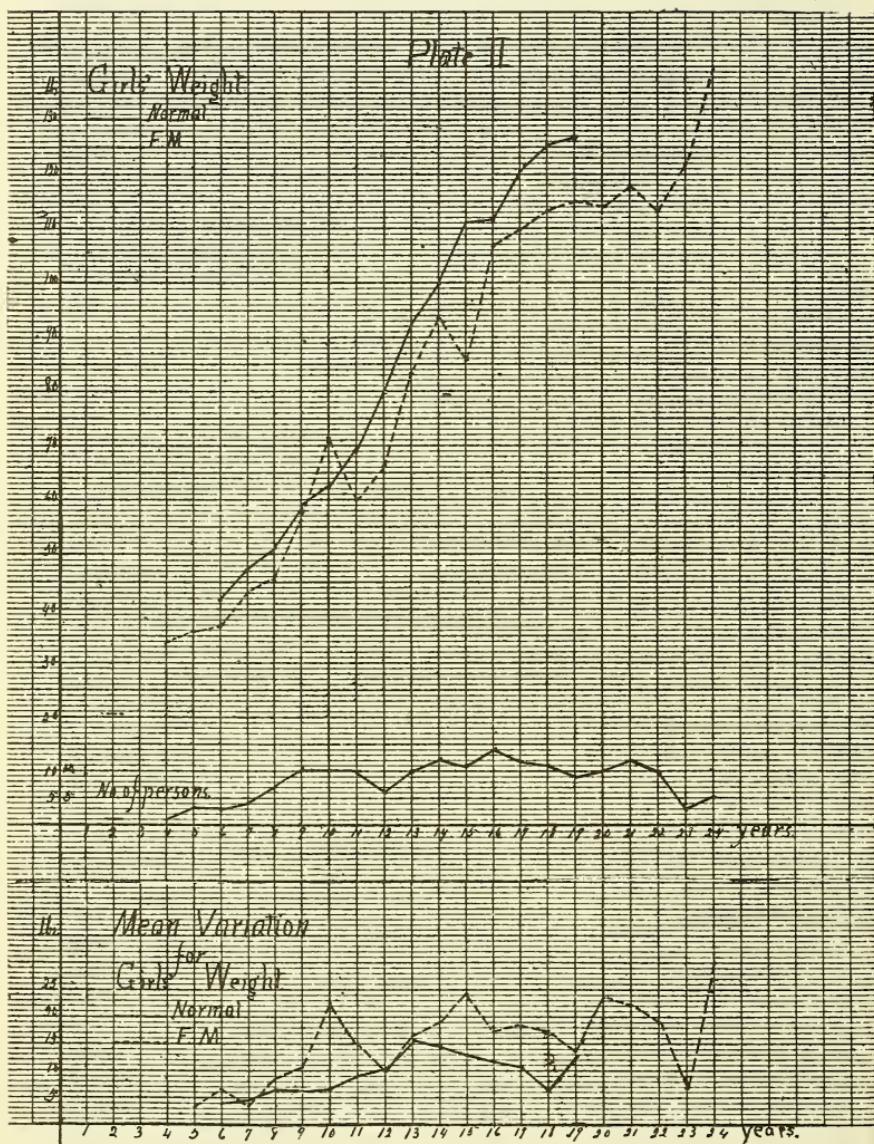
The results obtained are shown in Table I. This table will be readily understood by all, except, perhaps, the column marked "Mean Variations." The results in this column were obtained by subtracting individual weights of any year from

the average for the year, and then averaging these differences, the sign of the differences being neglected. The interpretation of this is, that while the average weight of a boy fourteen years old is 90.8 pounds, yet in an individual case we would expect the result to vary either way 16.5 pounds. This mean variation is calculated in place of the more common maximum and minimum, as being more exact. In fact, the author is inclined to think it is of the utmost importance in psycho-pathology.

From the figures of Table I. are platted the curves of the weights of boys and girls shown in Plates I. and II. Here it will be noticed that the curves of the feeble-minded children are below those of the normal school children, except at the points nine and ten years with the boys, where it barely exceeds the normal, and at ten years with the girls, where it is somewhat higher than normal. With normal boys the period from twelve to sixteen years is a period of rapid growth, the most rapid growth being from fourteen to sixteen years. The same years are a period of rapid growth for the feeble-minded boys, except at fifteen years, when there is a depression in the curve, the period of most rapid growth being for them between the years fifteen and sixteen. The period of most rapid growth for the normal girls is from eleven to thirteen years. The curve shows three periods of rapid growth for the feeble-minded girls, the most rapid being from twelve to fourteen and the others from eight to ten and fifteen to seventeen. We find a depression in the curve at fifteen years similar to that of the boys.

Plates I. and II. below show the curves of mean variation for the boys and girls. The normal curve shows greatest variation at periods of most rapid growth. The same is true of the feeble-minded children. The boys exceed the normal except at nine, eleven and sixteen years; the girls except at seven and twelve years. The years of greatest variation for the boys are ten, thirteen, fifteen, twenty-one; for the girls, ten, fifteen and twenty.





While the number of epileptics was too small to give us any established results, yet they show some interesting indications.

They are nearer the normal weight than the feeble-minded boys, at nine, twelve and fifteen years being considerably above normal.

TABLE I.—WEIGHT.

Age.	No.	W. B.	M. V.	N. E.	W. B. E.	M. V.	No. G.	W. G.	M. V.	No. E.	W. G. E.	M. V.
1	1	10.5	.....	.....	.....	.....	1	20.5	.....	.....	.....	.....
2	1	32.5	.....	.....	.....	.....	1	34.0	.....	.....	.....	.....
3	1	28.5	.....	.....	.....	.....	3	35.8	3.3	.....	.....	.....
4	2	.....	.....	.....	.....	.....	3	36.6	6.5	.....	.....	.....
5	2	38.7	2.7	.....	.....	.....	4	43.2	3.4	.....	.....	.....
6	3	42.0	5.3	1	29.0	.....	7	45.3	8.6	2	49.3	4.3
7	6	45.1	6.3	.....	.....	.....	10	56.0	10.6	.....	.....	.....
8	5	52.1	5.2	1	53.5	.....	10	70.1	22.4	1	72.0	.....
9	3	62.3	3.7	3	70.5	5.0	10	60.0	15.0	.....	.....	.....
10	9	62.6	17.3	1	55.0	.....	6	66.1	9.9	3	69.2	3.1
11	14	65.3	5.9	5	66.8	13.2	10	83.5	16.5	1	97.0	.....
12	11	66.7	14.6	2	101.2	12.2	12	93.5	19.0	3	102.3	12.4
13	14	75.2	20.6	4	91.5	11.0	11	85.8	24.2	.....	.....	.....
14	17	90.8	16.5	4	114.1	12.6	14	101.6	17.2	.....	.....	.....
15	9	87.7	21.0	7	136.4	20.9	12	109.7	18.4	.....	.....	.....
16	9	121.2	15.4	1	100.5	.....	11	113.1	17.6	2	112.0	10.0
17	10	107.0	18.0	1	105.5	.....	9	115.0	13.7	1	112.0	.....
18	11	123.6	15.3	3	128.0	2.7	10	114.3	23.3	2	137.0	3.
19	8	128.9	13.6	1	140.0	.....	12	117.9	22.0	2	130.0	2.
20	8	138.6	15.2	3	152.5	22.3	10	113.2	18.9	4	121.4	19.8
21	5	126.0	20.0	2	160.0	10.	12	120.2	6.6	.....	.....	.....
22	3	165.0	16.6	.....	.....	.....	5	139.4	30.1	.....	.....	.....
23	10	126.4	15.8	5	129.8	10.4	174	.....	.....	21	.....	.....
24	1	103.	.....	2	136.3	5.2	.....	.....	.....	.....	.....	.....
Whole No.	161	.....	46	.....	.....	.....	174	.....	.....	21	.....	.....

No.—Number of boys.

W. B.—Weight of Boys.

M. V.—Mean Variation.

N. E.—Number Epileptic Boys.

W. B. E.—Weight Epileptic Boys.

M. V.—Mean Variation.

No. G.—Number of Girls.

W. G.—Weight of Girls.

No. E.—Number Epileptic Girls.

W. G. E.—Weight Epileptic Girls.

Weights in pounds read to quarters.

HEIGHT.

Table II. shows the height of the children, the measurements being read to millimeters, the children having their shoes on.

Plates III. and IV. show the height curves for boys and girls. The curves of both girls and boys are below the nor-

mal. The boys come nearest the normal at ten and fourteen years; the girls at ten years. The normal boys grow most rapidly from fourteen to sixteen years; the feeble-minded boys between thirteen and fourteen years; the normal girls between eleven and thirteen years. We notice a depression at fifteen years in both these plates, the same as in Plates I. and II.; similarly a high point at ten years.

In Plates III. and IV. the mean variation is greatest at the periods of most rapid growth. It is greatest for the feeble-minded boys except at seven, nine, eleven and twelve years; with the girls it is greatest except at thirteen, and equal at eight and nineteen years. With the boys the greatest variation is at ten, fifteen and nineteen years; with the girls at ten and fourteen years.

Plate V. compares the heights and weights of the boys and the girls. Among normal children the boys are taller than the girls between eleven and twelve, and from fourteen years on, the girls being the tallest and also the heaviest from twelve to fourteen.

With the feeble-minded children the girls only exceed the boys at eight and thirteen years, in height, and at ten, seventeen and from twelve to fifteen, in weight, in this last period agreeing with normal children.

The curve of height of the epileptic boys exhibits the same characteristics as their weight curve.

NOTES.

Dr. G. G. Tarbell, in Vol. I. of Proceedings of Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons (page 188), has given a diagram showing the height and weight of the children in the Massachusetts school in 1881. And, although he does not give the number of children at each age from whom his results are deduced, yet the diagram is remarkably similar to ours. The children are

below the normal in height and weight; at ten years is a period of rapid growth, and at fifteen years a period of no change.

L. W. Kline, in his study of truancy,¹ has given diagrams exhibiting the growth in height and weight of truants as compared with the normal. It is similar to our Plates I. and III. in all essential characteristics.

Porter, in a similar study on St. Louis school children, finds that the brighter children are taller and heavier. Gilbert, in his work on Iowa school children, finds no such indication.²

1.—*Pedagog. Sem.* Jan. '98, p. 405.

2.—Gilbert, op. cit., p. 34.

CONCLUSIONS.

1. A larger number of persons measured would make the curve more regular, but would not change its essential characteristics as pointed out.
2. Feeble-minded children are subnormal in height and weight.
3. They are nearest normal at ten years. All the charts show the ten-year point to be one of rapid growth.
4. The depression at fifteen years in all the curves would indicate a delayed puberty in part of the children.
5. Development is delayed among the feeble-minded. They continue growing later than normal children.
6. A high mean variation is characteristic, indicating probably a delayed development, and a spent vital force.
7. The curves showing height and weight of girls are more regular than those of the boys, indicating a closer conformity to type.
8. Epileptics are nearer normal than the feeble-minded, and their development is not delayed as much. The fact that they exceed the normal at several periods would be favorable to Ohlmacher's pathology of idiopathic epilepsy.

TABLE II.—HEIGHT.

Age.	No.	H. B.	M. V.	No. E.	H. B. E.	M. V.	No. G.	H. G.	M. V.	No. E. G.	H. G. E.	M. V.
1	1	867	.....	.....	.....	.....	1	752	.....	.....	.....	.....
2	1	826	.....	.....	.....	.....	3	992	48	.....	.....	.....
3	1	826	.....	.....	.....	.....	3	992	48	.....	.....	.....
4	2	1003	61	.....	.....	.....	1	992	48	.....	.....	.....
5	3	1083	45	1	954	2	2	1066	13	.....	.....	.....
6	3	1083	45	1	954	2	4	1080	84	.....	.....	.....
7	6	1133	37	.....	.....	.....	6	1198	40	1	1290	.....
8	5	1192	44	1	1242	.....	9	1222	88	.....	.....	.....
9	3	1240	35	3	1429	113	9	1320	132	1	1347	.....
10	9	1340	121	.....	.....	.....	8	1320	132	1	1347	.....
11	14	1341	30	4	1381	38	8	1270	92	.....	.....	.....
12	9	1397	40	2	1524	80	6	1346	92	3	1400	120
13	14	1373	74.3	4	1402	54	9	1398	60	1	1568	.....
14	16	1530	87	4	1573	53	9	1458	123	3	1559	94
15	7	1497	97	7	1669	84	9	1453	95	.....	.....	.....
16	9	1585	66	1	1470	.....	13	1501	107	.....	.....	.....
17	10	1585	64	1	1613	.....	12	1530	70	.....	.....	.....
18	10	1645	45	3	1665	23	9	1531	60	2	1554	10
19	8	1659	90	1	1724	.....	9	1511	34	1	1592	.....
20	8	1695	68	3	1628	81	9	1538	83	2	1556	78
21	5	1592	58.0	2	1781	33	12	1542	92	2	1584	74
22	3	1754	21.0	.....	.....	.....	10	1571	82	4	1631	53
23	9	1660	59	5	1622	39	3	1539	50	.....	.....	.....
24	1	1433	.....	2	1635	52	5	1532	96	.....	.....	.....
Whole No.	153	.....	.....	44	.....	.....	157	.....	20	.....	.....	.....

No.—Number Boys.

H. B.—Height Boys.

M. V.—Mean Variation.

No. E.—Number Epileptic Boys.

H. B. E.—Height Epileptic Boys.

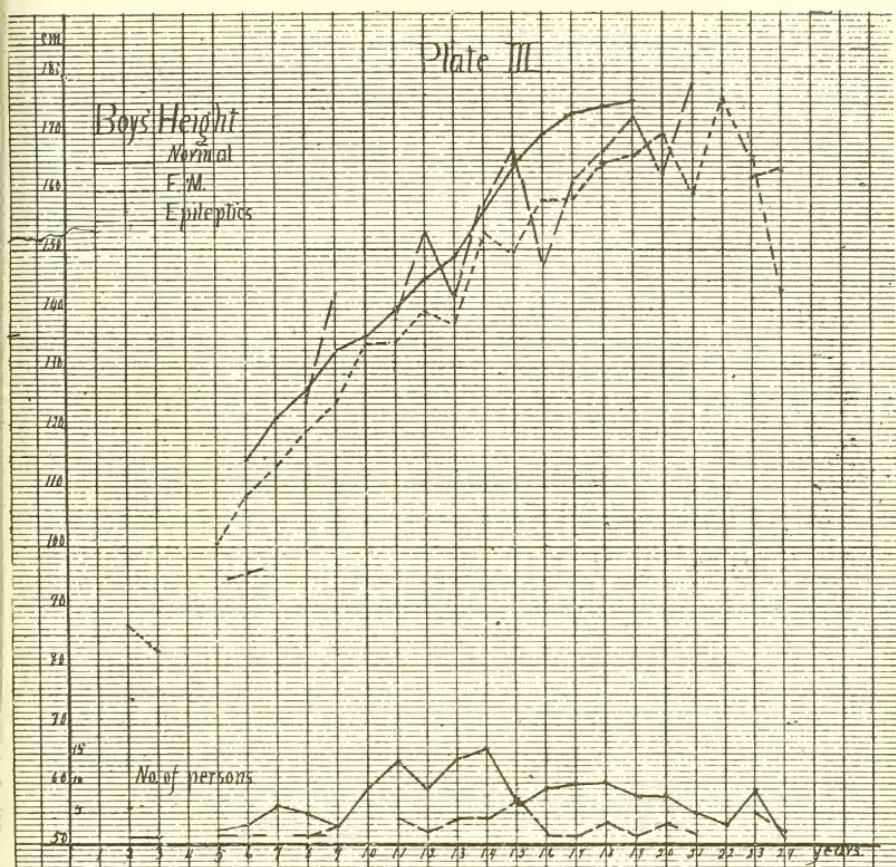
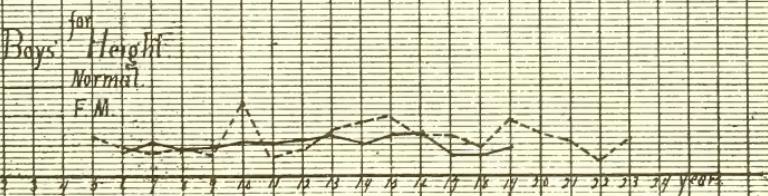
No. G.—Number Girls.

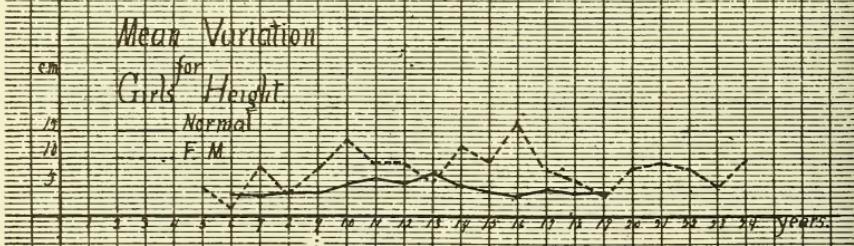
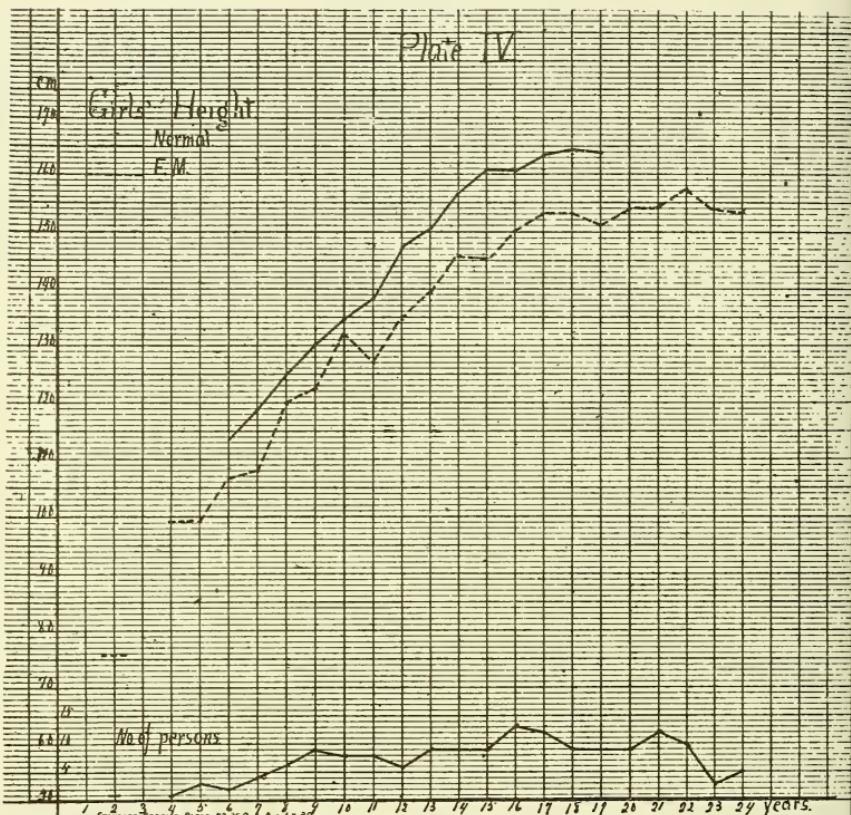
H. G.—Height Girls.

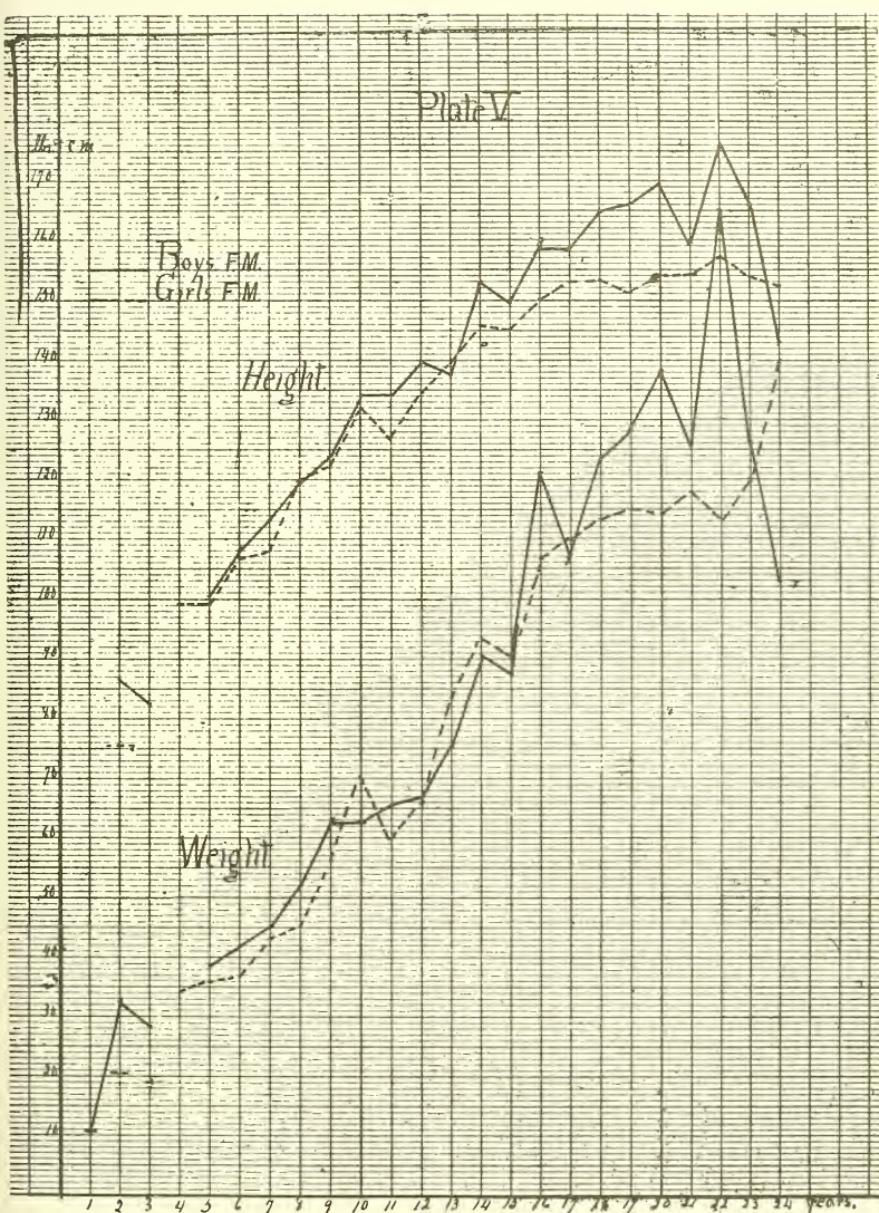
No. E. G.—Number Epileptic Girls.

H. G. E.—Height Epileptic Girls.

Heights read in millimeters with shoes on.

**Mean Variation**





THE ELEMENTARY EDUCATION OF DEFECTIVE CHILDREN BY "SPECIAL CLASSES" IN LONDON.

(From reports and circulars kindly furnished by Dr. G. E. Shuttleworth, and published here in reply to inquiries on this subject.)

There are in England and Wales about 42,000 children, or one per cent of the elementary school class, between the ages of seven and thirteen, who are too mentally weak to be taught in ordinary schools, but who are neither idiots nor imbeciles. In London alone there are over 8,000 such children. This estimate is based upon the inquiries made by the departmental committee on defective children.

The London school board opened its first "Special Class" for the instruction of feeble-minded children in 1892. There are now (May, 1899) special classes in London and other towns, as follows:

London has special class accommodation for 1,826 children.

Bristol has special class accommodation for 67 children.

Birmingham has special class accommodation for 78 children.

Bradford has special class accommodation for 81 children.

Brighton has special class accommodation for 44 children.

Nottingham has special class accommodation for 120 children.

Leicester has special class accommodation for 141 children.

Plymouth has special class accommodation for 68 children.

Bolton has special class accommodation for 36 children.

Manchester, Burnley, Bury and other towns are in process of providing special classes, or specially trained teachers.

The cost of each child in a special class is more than twice as much as that of a child in an ordinary school.

In 1896 the lord president of council on education appointed a committee to inquire into existing systems for the education of feeble-minded children, and to advise as to any changes,

either with or without legislation, that might be necessary. The main recommendations of the committee were as follows:

1. That towns with a population of 10,000 or upwards should establish a special class, or classes, for feeble-minded children.

2. That school authorities should have power to provide maintenance in homes or conveyance to and from school when necessary.

3. That school authorities should have power to raise the age for compulsory attendance, when desirable, to sixteen for feeble-minded children.

4. That admission to special classes should be made after examination by a medical officer.

These provisions are based upon those already in force in the case of blind and deaf children.

A bill has been drafted with a view to furthering the recommendations of the departmental committee, and rendering it possible for the education department to increase the government grant for defective children as the department may see fit.

From the report of the superintendent of the instruction of physically and mentally defective children, made on Lady-Day, March 25, 1899 (for the London school board), we publish the following:

"There are now forty-three centers at work. * * * These centers provide accommodation for 2,030 pupils, and employ eighty-six teachers, besides the superintendent.

"Quarterly examinations are held by the superintendent and Dr. May Berry and Dr. G. E. Shuttleworth, for the admission of pupils to the classes, for the promotion of those who have improved sufficiently to enable them to work in the senior departments, and for the exclusion of those who after a fair trial prove themselves unable to sufficiently benefit by the instruction given to warrant their retention in our day schools.

"Eleven new centers have been opened during the past year.

"The number of pupils on the roll is 1,682, and 139 have been promoted to the senior departments, where they continue to make satisfactory progress.

"Of the children rejected as too imbecile for our centers, thirty-five have entered asylums, and fifty-five remain at home, as some parents will take no action to bring the child before the guardians, and some that do have the child rejected by the guardians. This is a very unsatisfactory method of dealing with this question of leaving the "unfit" liberty until they injure some one or become quite unmanageable at home. There are cases where the mother is worn out with the care of one such child. Few workingmen's homes can provide proper care for an imbecile child, who requires constant attention and training.

"Ninety-two children have left, being over fourteen years of age, and have found some kind of employment, *e. g.*, 15 girls as general servants (with an average weekly wage of 2s. 6d.), 6 work as laundresses, 12 work at home, 1 is a dressmaker's apprentice (doing well), 8 boys are regularly employed as errand boys, 6 flower or fruit sellers, 2 van boys, 8 in factories, 1 cabinetmaker, 2 harnessmakers, 1 wood carver, 1 in brick field, 2 in iron works, 1 printer, 1 cigarette maker, 1 milkman, 1 farm laborer. The highest wage is 8s. per week, and the lowest 2s. 6d.

"Of course there are some failures, but the general result is satisfactory, a showing that these children repay the money expended upon them during their school life, for without it they would have been unable to help themselves on leaving school.

"The epileptic children still remain without sufficient accommodation, as in nearly every case they need permanent 'homes.' A new experiment has been started for the poor-law feeble-minded children. A home has been provided for the accommodation of twenty girls near one of the centers,

where they attend daily, and where, by their regular attendance, perfect cleanliness, and well fed and well dressed appearance, they often present a strong contrast to the other children in the class, whom it would vastly improve to live under similar conditions.

"At 'The Passmore Edwards Settlement,' Tavistock-place, two classes have been opened for the education of cripple children only, the board providing the teachers and apparatus, and the Settlement a nurse and an ambulance in which to bring the children to school. These pupils have a hot dinner daily, for which they pay 1½d. Already the accommodation is insufficient to meet the demands made upon it.

"Children who come to the classes needing food have some supplied by the teachers, who receive a grant from the 'Referee Children's Free Breakfast and Dinner Fund' for this purpose. In some cases a drink of fresh milk is given at the morning recess or at the commencement of morning school. About 560 children have been given food during the winter months.

"Through 'The Country Holidays Fund' 180 children have been sent to the country or seaside homes for two weeks, and it would be well if every child could enjoy the same privilege, as all are needing it.

"Fifteen schools had a day's holiday for an excursion to the country, and six went to the Royal Zoological Society's Gardens, the funds for which were generously supplied from 'Pearson's Country Holiday Fund,' through the secretary of the R. S. U.

"A child on entering the class is generally given something to 'do,' so that its attention and interest may be secured, if only for a few minutes, and when this has been repeated many days, then it may begin to listen to 'instruction.' The mornings are devoted to the three R's and object lessons, and the afternoons to varied occupations. The girls who are sufficiently capable attend laundry and cookery classes, and take great delight in their work. The boys attend the manual training

classes, and many of them show specimens of good work. A few are taught swimming, and an experiment has been tried of giving some boys cookery lessons. All such lessons train the faculties of observation, and so greatly assist the dull child in its struggle for a living. Physical exercises are part of the daily routine. Singing lessons are a source of pleasure to all, especially if accompanied by the piano.

"The teacher is constantly reminded that pupils have no will power, and the aim must be in all the teaching to strengthen the child mentally and physically. From this report it will be seen that the teachers have responded well to the calls upon their skill as teachers and their patience and intelligence, which these weaklings make upon them. In every class there appears a great bond of sympathy between them and their pupils, and it is gratifying to find that her majesty's inspectors have noted these points in their annual reports. The managers have shown during the past year much interest in the schools; and it is worthy of note that a closer and longer acquaintance seems always to increase their sympathetic assistance. One lady manager is staying in town to take sixteen children to the seaside, and provided a mail cart, so that a very delicate cripple child could attend school. Another gives 'her children' a garden party each year, and is pleased with the good manners and general *natural* behavior of the children.

"The schools are comparatively costly, for each child must have individual instruction, and it follows that the number in each class must be small; but looking at the results, whether from the altruistic or economic point of view, it is certain that value for money will be received in the future."

The London board are governed, among others, by the following regulations:

1. That there should not be to exceed twenty pupils in each class.

2. No "center" should, if possible, be for fewer than two classes, nor for more than five.

3. Should the sparse nature of the population make it necessary to open a single class, it should be in the ordinary school building, and not isolated.

4. The children, as a rule, should not travel more than from a half mile to a mile, according to the thickly peopled or suburban character of the neighborhood.

A superintendent is in charge of the special instruction, whose duty it is to inspect the ordinary schools and report upon cases suitable for the classes, bringing the attention to them; and to organize and superintend the "centers."

Her majesty's inspectors visit these classes, and the ordinary grant for infants' schools is payable on the average attendance.

Teachers are paid same as corresponding teachers in the ordinary schools, with the additional sum of ten pounds for first year and fifteen pounds after first year of service. Teachers are appointed for five years after one year on probation. At the end of five years the appointments are reviewed, and if it is found desirable, they are drafted into the ordinary schools, and replaced by fresh teachers.

An Act of Parliament passed in August, 1899, provides that school authorities may make arrangements for ascertaining the number of defective children in their districts who are not incapable of receiving benefit from instruction in special classes or schools, and also the number of epileptic children, a certificate from a duly qualified practitioner being required in each case. The school authorities shall provide facilities for examining the children, and the parent of any child required to be examined who fails to present him for examination shall be liable to a fine not exceeding five pounds.

Where it has been ascertained that there are defective children in a district, their education may be provided for by all or any of the following means:

1. By classes in public elementary schools certified by the education department as special classes; or,
2. By boarding out, subject to the regulations of the education department, any such child in a house conveniently near to a certified special class or school; or,
3. By establishing schools, certified by the education department, for defective children.

Where it has been ascertained that there are epileptic children in a district, their education may be provided for by establishing schools for epileptic children.

A school authority may, in respect of children resident in their district and attending special classes in another district, contribute the proportionate cost of the provision and maintenance of such special classes.

The school authorities shall make provision for the examination of the children from time to time, to ascertain whether they have become fit to attend the ordinary classes of public elementary schools.

The education department shall not certify any establishment for boarding and lodging more than fifteen defective or epileptic children in one building, or comprising more than four such buildings.

A school authority may provide guides or conveyances for children unable to attend school without them.

The duty of a parent to provide elementary instruction for his child shall apply in the case of a defective or epileptic child over seven years of age in any place where a certified special class is within reach of the child's residence. A defective or epileptic boy or girl shall be deemed a child until the age of sixteen years, and the period of compulsory education shall extend to that time.

REPORT OF THE VACATION SCHOOL FOR THE FEEBLE-MINDED.

BY IDA J. SCOTT.

A new departure in educational work was made this summer, in the opening of a vacation school for feeble-minded children at the University of Chicago Settlement, 4634 Ashland Ave. It was due to the earnest work of Miss Mary McDowell, who has long felt that something should be done for the feeble-minded children of our city. In response to her appeal this year to different members of the Chicago Woman's Club, seventy-five dollars was placed at her disposal for this experiment, and the number of pupils was limited.

So far as has been ascertained, this is the first day school work of the kind ever attempted in this country, though much has been done in England, where the education and welfare of this class of children is receiving wide attention.

The object in our summer plan was, aside from giving these neglected little ones a few weeks of happiness and uplift, to ascertain the practicability of such work for them.

Miss Alice C. Schilling was placed in charge of the class, and the three children, two of whom had had no previous training, were in quite regular attendance. They had no language, and could not speak the simplest word perfectly, though all made some attempt at speech. This lack of the power of coördination manifested itself also in their inability to use scissors or chalk, or to perform any of the operations habitual with children of their age.

Like most feeble-minded children, they were fond of music, and would know the tunes they heard, though one little girl was at first strangely frightened by the piano.

In noting their progress, it must be remembered that, for children like these, without speech and with very imperfect coördination, no standard, such as that taken in judging of normal children, can be used.

John was seven years old, of normal size, and well nourished. On his first day in school he could not be induced to sit down, but ran about uttering inarticulate cries, like a person in a delirium. He would throw things about, and it seemed impossible to catch his attention. The second day he was more quiet. A hammer and nails were given him, and he played for twenty minutes without stopping. He did not care to go home at night.

The third day he was somewhat restless, but gradually became contented. At the end of a week he could manage his scissors better, and was more interested. He learned to handle the blocks, though never liking to have anyone show him how to use them. At the end of the second week, he worked with less assistance, and picked up his hammer when he dropped it. At first there had been no discrimination as to front or back of picture, or as to whether it were pasted right side up or not, but by the end of the third week he recognized these differences, told his father in his own way of the motion song at school, and showed that he was learning to discriminate colors by bringing the required one to his teacher. When Miss Schilling said she would take them to walk, he went and brought all the hats. He evinced but little interest in the tiny garden planted for them, but liked the clay, the blocks, and the hammer and nails. Before the close of the term he had learned to put away his playthings when done with them, and to understand some spoken words, gave better attention to what was going on about him, was more responsive, and, in general, had much better control of his body.

Katie, a little girl of eight, showed some slight improvement, but her extreme nervousness and irritability rendered the task more difficult than with the others. She had very poor control of her body; could not go down steps without sitting down and climbing. It was necessary to guide her hands when trying to do anything, even freehand blackboard drawing. She could talk a little more than the others, but at

first was listless, and could only be interested in anything for a very few moments at a time. Two weeks after entering school, she seemed to enjoy pasting pictures, and later was happy with the clay and soap bubbles. In fact, the clay interested her more than anything else. She improved perceptibly in the coördination of hand and eye, and as a result of this growing power of more satisfactory expression, she gradually became much better tempered.

Lisa was twelve years old, and tiny as a child of five. When one studied her, it would seem as though many possibilities were behind the twilight of that little mind. If nothing were gained during those summer weeks but the temporary brightening of this forlorn little life, it would well have repaid those whose liberality provided the school. Lisa loved the school, and more than once was found there at six in the morning. Though at first frightened by the piano, she gradually learned to like it, and would imitate the motions of kindergarten songs. Music became her greatest delight. She often hummed the tunes she heard, and would keep very good time to the piano by clapping her hands. Not so much progress was made as in John's case, but enough to show that something could be done for children of this type.

Whenever possible, the children were taken to the parks, and occasional visits were made to the nursery and playground, where they had greater freedom, and the companionship of other children.

An environment such as is provided in the Cleveland public day school for the deaf, with a large lawn, trees and place for little garden plots, and, inside the building, a complete home atmosphere, would have been an ideal condition for these little ones.

Dr. Howe said, years ago, that schools for such children should be a link in the chain of common schools. When the work for them was first begun, about sixty years ago, there were only a few thousand feeble-minded children reported in

the country. In forty years the number has increased from 10,000 to 100,000, and the increase is now said to be at the rate of 2,000 a year. Of the 100,000 feeble-minded children, not one-tenth are at present provided for by schools.

When the full significance of these figures is considered, work undertaken in a spirit of philanthropy will be carried on from a sense of the great need of providing a safeguard for society. Many of these children, with help, can be brought to a higher standard, who otherwise would be a prey upon, and a menace to, society. With their weak wills and deficient judgment, they are easily influenced for evil, and recruit the ranks of criminals.

It has not been attempted in this report to speak from a psychological standpoint, but merely to bring the progress of the work this summer before the ladies who made the experiment possible. A story is told in "Marm Lisa," by Kate Douglas Wiggin, of a time when money was needed to build a home for those of ailing mind and body. The leader of this "Colony of Mercy," Pastor Von Bodelschwingh, asked every parent in Germany for a thank offering for each well child. The parents' hearts were thrilled by the appeal, and when the building was erected, it seemed as though the very bricks and mortar must be transformed by the thoughts of gratitude they stood for.

If the way pointed out this summer, by which this little "Lisa" and John and Gertie of our city saw a new and brighter world for two months, can only serve to call attention to the needs of this great army of neglected children, hundreds of whom are, in our own city, waiting for help, what parent would not hasten to aid in the work from very gratitude for his own well children! What citizen would not further it as a measure for the future good of society!

THE CARE OF EPILEPTICS IN DENMARK.

TRANSLATION AND REMARKS BY BERTHA JENSEN.

From the second and the eighth numbers of the "Nyt Tidsskrift for Abnormvaesenet," for 1899, we learn something of the work for epileptics in Denmark through an article by Dr. Keller, of Copenhagen, and the reprint of a circular by Dr. Sell, superintendent of the Tersløse Colony. The circular is in the nature of a combined description of the disease, the requirements of an ideal colony, a description of Tersløse, and an appeal for assistance. The following are such extracts from translations of the above as will be of especial interest to readers of the Journal:

EPILEPTIC INSTITUTIONS IN DENMARK.

The subject of the establishment of a very much needed home for epileptics has at last been taken up, and it is hoped that the attempt will this time meet with success. The efforts that have been made during the past years to induce the state to take the initiative in this work have proven fruitless, and it is due to private efforts that it is now commenced, and at not less than three places.

A few months ago a private association opened the first home for epileptic men at Tersløse, near Sorø, under the direction of Dr. Sell. A building constructed for that purpose ("Korshuset") accommodates thirty men, who are employed, among other things, on a farm of about seventeen acres belonging to the home. Later a second building, which had heretofore been used as a sanitarium for nervous diseases, was secured for a home for fourteen epileptic women. During the summer a home for epileptic boys was opened in the Deaconess Home, near Nyborg. Nicely situated grounds, near Nyborg Bay, have been granted by the community and a building is now being erected. This home will accommodate twenty boys. And, lastly, the Deaconess organization intends to open a

home for epileptic girls at Ruds-Vedby, not far from the Tersløse institution. This property consists of about forty-two acres of land, a large institution building, formerly used as hospital, and a good home for the superintendent, or person in charge. If Denmark meets with the success of other countries, it will not be long before these three young shoots will make a vigorous growth, if supported by the sympathy of the public. They will then certainly know how to find the way to obtain the necessary coöperation.

At the south border of a forest of beech trees, on nearly four hundred acres of land belonging to the Sorö Academy, and a good mile and a half north of Sorö, lie, in rural surroundings, a few houses, the purpose of which is to be a home-like retreat or health resort for people who suffer from the disease known as epilepsy. The assistance they need consists not only in providing them with the necessary means of subsistence and with medicine; the many, who, on account of their disease, have lost occupation and homes, must have this loss restored. We must find in our country a little spot where they can establish, what we all love, a home, arranged for them, and with their requirements in view. On a territory, not too small, of rural situation, we must found a colony that they can call their own. It must consist of family houses,—houses that serve as a place of residence, and not larger than the practical requirements necessitate,—that is, for twenty-five or thirty persons. The stamp of family life must be present to the greatest possible extent. Each house must be managed by a good house father and house mother, who, with the assistance of a male and female force and energy, strive to do their duty in a Christ-like manner. There must be a church or chapel in the colony, arranged with a side room where a person may be brought when taken with a spasm during the service; there must also be places for recreations of different natures,—art, music, recitals, exhibitions, etc.; a hospital for the isolation of contagious diseases, and accommodation of sick when suf-

fering from other diseases requiring special treatment; and other buildings for different necessities. Referring to our own work, a school home for epileptic children is proposed. In the home for epileptic women, they are employed in feminine work—the repairing of clothing, sewing of new articles, washing, etc. Furthermore there must be workshops for the different trades, farming and gardening, so that every patient, as nearly as possible, may find employment along the lines that his training and inclination make desirable. This is the aim of the colony commenced at Tersl  e, and without generous assistance many conditions essential to the success of the undertaking will be lacking.

From presents and assistance from various sources, for which the establishment extends its hearty thanks in behalf of the epileptics, we have the following buildings: "Sanatoriet," formerly used especially for patients suffering from nervous diseases, accommodates fourteen women. The matron is an experienced nurse. "Korshuset," which was completed last summer, accommodates about thirty men. The house father is Mr. Jensen, who, after a sojourn in the large colony at Bielefeld, is thoroughly familiar with the epileptic and his management. He and his wife, with two male nurses and a housekeeper, manage this house. The farm affords home for a farmer and wife, who have charge of it—about seventeen acres. It also affords a good, healthy occupation for the epileptics who are able to share in it.

This property and all that belongs to it, or will in the future belong to it, is managed by unpaid officers, and is not owned by any individual or corporation. All that is earned or given belongs entirely to the epileptics.

We have had the pleasure of seeing a thorough improvement among our patients. The convulsions are, on an average, considerably decreased, in different ways with the different individuals. The violent, and at times vicious, disposition has become more mild—with some to a happy degree. The work

requires a good deal of love, accompanied by discretion, patience and firmness, and will then receive its reward. The afflicted are led to regard their disease, and what is done for it and them, in the light of the gospel. Family devotion is held every day, and every one who is able is assigned to some work suitable to his capacity. Regular employment is a necessary link in the daily life. We have arranged for Sunday services in the best possible way at present; the epileptic cannot attend church. We have also arranged for beneficial recreation, so far as our means will permit.

In order that this work shall attain the object already mentioned, it is necessary that the friends of the sick extend to us a helping hand. We need to build several houses according to the above plan. We ask kind people to send us subscriptions, large or small, and to remember the epileptics with legacies. We need yearly contributions for the care of the indigent epileptics. We hope to reach a stage when it will not be necessary to turn away any applicant because he is not able to furnish the minimum yearly payment—400 crowns (about \$112). Our per capita expenses are estimated at about 500 crowns (about \$140) per year. There are already several waiting to be admitted, in advance of our accommodations. A few are able to furnish a part of the yearly subscription; others nothing. We gratefully accept all gifts, goods, etc., that may be utilized for the benefit of the patients or manufactured by them. We can use everything,—clothes, old and new, foot wear, pieces of woolen goods that may be made into articles of clothing, bed linen, stamps, articles of food, etc. Such goods may be addressed to the "Institution for Epileptics, Terslöse, via Sorö."

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EDITOR-IN-CHIEF:

A. C. RCGERS, M. D.,	- - - - -	Faribault, Minn.
W. E. FERNALD, M. D.,	- - - - -	Waverly, Mass.
A. W. WILMARTH, M. D.,	- - - - -	Chippewa Falls, Wis.
F. M. POWELL, M. D.,	- - - - -	Glenwood, Iowa.
M. W. BARR, M. D.,	- - - - -	Elwyn, Pa.
ALEXANDER JOHNSON,	- - - - -	Ft. Wayne, Ind.

Address: JOURNAL OF PSYCHO-ASTHENICS, Faribault, Minn.

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METHODS OF ADMISSION TO INSTITUTIONS FOR THE FEEBLE-MINDED.

A considerable difference exists in the methods of admission to the different institutions for the care of the feeble-minded, and it is worth inquiring if a movement to secure uniformity in this particular might not be desirable. Because of the belief in the earlier days that the defective mind could be trained to a normal development by suitable teaching, in some of the older institutions the state provided for only a specified period of residence. This plan has been modified in some places. On the other hand, in one state at least, the cases are required to be examined by two physicians, as in case of the insane. These physicians are appointed by the county judge, who, on receiving their report

that the person examined is a suitable subject for the care of an institution, commits for an indefinite period. Discharge then lies with the superintendent, with the approval of the controlling board. This plan has an advantage over the method of placing children by agreement between the parent and superintendent, in as much that the removal in unsuitable cases is absolutely prevented. Where there is no objection to the removal home of the child, it is done with the utmost ease. Very often, however, parents hear of their children becoming useful in various ways, and through a desire to profit by what they have learned, will attempt their removal. Maturing girls, again, will be demanded by parents entirely unfitted for their care. It is well in such cases for the institution authorities to be armed with a legal commitment, to keep these children from dangerous release, or to recover them in case of elopement or abduction. The final decision of the controlling board constitutes a safeguard against any error of judgment or possible abuse of power on the part of the superintendent.

We have heard exclamations, almost of horror, at the idea of the feeble-minded being "committed for life." The term appears to bring up the idea of confinement and the long years of punishment which are meted out to great offenders. Instead of this, the child simply becomes a member of a congenial community, in surroundings adapted to his especial needs, free from all the grave responsibilities of life which he is unsuited to meet. It has more of the character of an emigration to a locality where the conditions of life are better adapted to the needs of such individuals. He associates with children of his own grade of intelligence. He is lifted to a higher moral plane by the teaching of selected teachers. He is taught some useful employment, and secures and takes pride in a standing in the little community in which he feels that he fills an important place. He is furnished with entertainment suited to his understanding, and may take an active part in furnishing it. In the girl, the inevitable instinct of

maternity, which finds its first expression in the love for a doll, is gratified and satisfied with the care of the little ones which are always found in such an institution.

Of what is a high-grade imbecile deprived on entering a well-conducted institution? He is deprived of a lack of congenial society in the community at large, where he never stands on the same plane as his fellows; and the discouraging influence of such a position of mental inferiority is most detrimental to progress. He is deprived of a life of poverty; for these are times when intelligence and industry are essential to attain even a comfortable livelihood. Development of maternal instinct prompts to early marriage, or frequently to illegitimate motherhood. Such hasty marriages, without much idea of the grave responsibilities involved, terminate very frequently in divorce, or desertion, and remarriage. The study of these family histories in our institutions, where mental weakness is not an accident, but a family trait, is a revelation on this point.

The active interest of the feeble-minded in the daily life of institutional communities, the enjoyment of the society of those of their own mental standing, the replacement of the feeling of inferiority by consciousness of equality and its incentive to progress, should certainly compensate for any "deprivation" they may suffer by the change. The readiness with which children who leave institutions for their homes for a vacation will return to their companions is a strong argument that the life in such a community is a proper one for them. Not infrequently children will insist on returning before their allotted vacation is finished. It is true that long residence in an institution may be detrimental to those who have afterwards to go out into the general community to struggle for their livelihood. It is also true that few, if any, superintendents of institutions for the feeble-minded make any claim of being able to restore an inherently feeble-minded person to normal mind to ever stand on an equality with the normal citizen. So they should be subjects for life-long guidance by others.

Possibly a better plan would be to have children committed voluntarily, but to have a legal process provided for that would enable any case, inside or out of the institution, to be placed under the life guardianship of the institution, when the conditions were such that the child's best interest required it. This would permit the admission and training of many children whose friends otherwise might be prevented from making any commitment.

In any event, the state must ultimately care for the vast majority of this class of cases during their natural term of life, and assume their care for this period, with the condition that parents or guardians may withdraw their children if they desire to do so, provided they can show evidence that the child will be comfortably cared for, and that no danger to the community will occur through its release. When such guarantee cannot be provided, the state should stand "*in loco parentis.*"

THE "SPECIAL CLASSES."

We are glad to publish in this issue quite a complete explanatory statement of the English special classes, particularly as carried on in London. We are indebted to Dr. G. E. Shuttleworth for the reports and circulars from which the information was obtained.

The question has several times been raised in this country as to the advisability of providing for special classes, at least in the larger cities. Our readers will be interested in Mrs. Scott's report of the Chicago experiment. All who have to do with schools for feeble-minded realize that there are a few children on the border land between perfectly normal children and those whose mental weakness is unquestioned that are not capable of making progress in the public schools, and yet who are very sensitive about being classed as feeble-minded. It would seem that special schools would be very useful for such pupils in this country, though the social con-

ditions in England and America are so different that what would be successful there would not necessarily be so here. Without entering into any special discussion of the question at this time, it seems to us, in the light of the present day, that the village community plan approaches most nearly the ideal arrangement for our defectives, and the social conditions of America are favorable to its development.

We are pained to learn of the death in September last of Mrs. Ireland, for thirty-eight years the devoted wife of Dr. W. W. Ireland, of Mavisbush, Polton, Scotland. The Journal extends earnest sympathy to Dr. Ireland in this great sorrow—the first visit of the Grim Messenger to his family.

The Journal extends sympathy to Dr. W. B. Fish for the loss of his "Home," by fire, at Wheaton, Ill. It seems that the fire started in the laundry, and within a few minutes enveloped the whole building. Fortunately the children were out for recess, and no one was injured, though the doctor himself had a narrow escape, as he entered the burning building in search of a child reported missing, but afterwards found outside.

Dr. T. Telford-Smith has left the Royal Albert Asylum permanently, and after a long rest will settle in the south of London.

Day schools for feeble-minded are being tried in Providence, R. I., and in Philadelphia, Pa.

The Barony Parochial Board of Glasgow, Scotland, representing a population of about 300,000, have begun to build an asylum for their pauper idiots.

The new state institution for feeble-minded in Missouri is located near Marshall.

ASSOCIATION PROGRAMME.

Dr. Fernald, chairman of the committee on programme for the meeting of the Association at Polk, reports the following for this meeting:

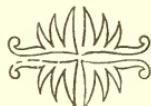
1. The Educational Value of Public Exhibitions—Mr. A. Johnson, Fort Wayne, Ind.
2. The Report of Six Cases of Microcephalous—Dr. M. W. Barr, Elwyn, Pa.
3. Institution Construction and Organization—Dr. A. W. Wilmarth, Chippewa Falls, Wis.
4. Special Classes for Defective School Children—Dr. Walter E. Channing, Boston, Mass.
5. On the Importance of Collection and Study of the Osseous Remains of the Feeble-Minded and Idiotic—Dr. Ales Hrdlicka, New York City.
6. Legal Status of the Feeble-Minded—Dr. A. C. Rogers, Faribault, Minn.

Papers are also to be presented by Dr. Fernald, Waverly, Mass.; Dr. Powell, Glenwood, Iowa; Dr. Taylor and Dr. Bullard, of Boston, Mass.; Mrs. E. Seguin, of Orange, N. J., and Dr. McDowell, Polk, Pa.

BOOK NOTICE.

"The Care and Treatment of Epileptics," by William Pryor Letchworth, LL. D., published by G. P. Putnam's Sons, New York and London, is an admirable work for all interested in this general subject. It discusses in a clear and entertaining manner the nature of this terrible malady, and what is being done for it both in this country and Europe, dwelling especially upon the Craig colony at Soneyea, N. Y., the Ohio colony at Gallipolis, Ohio, the two largest in this country, and the Bethel colony near Bielefeld, Germany, the parent and most wonderful of all the colonies. Mr. Letch-

worth has collected and presents in this work practically all of the general facts and statistics pertaining to epilepsy that are known, and has presented them in a manner that appeals to the physician, sociologist and statesman alike. Over seventy photogravures and sketches illustrate the text, and give a very clear idea of buildings, grounds and interiors of many institutions for epileptics, as well as groups of patients and care-takers. The book is a valuable and timely addition to our literature upon the sociological side of epilepsy.





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NO. 3.

THE THYROID TREATMENT OF SPORADIC CRETINISM AND IMBECILITY IN AMERICA.*

BY J. MOORHEAD MURDOCH, M. D., POLK, PA.

My excuse for bringing the subject of sporadic cretinism before this association is that we may learn how our expectations and hopes of improving the condition of the cretins under our care are being realized with the lengthening of the period of their treatment with sheep thyroids.

Among the first reported cases of sporadic cretinism in America treated with sheep thyroids is the case reported by Dr. Carson, in the forty-sixth annual report of the Syracuse State Institution for Feeble-Minded Children. This case is so typical that I quote in full from Dr. Carson's report:

"M. Y., admitted into the institution in 1889, at which time she was twelve years old, and thirty-nine inches high. Her skin was rough, loose and flabby, and of an earthy color; her teeth were simply remnants of the first dentition; her hair was coarse, sparse and short, and her scalp was covered with pityriasis. She was of a placid disposition, and her speech consisted of a few monosyllables. About six years after her admission it was found that she had grown

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about one inch and a half, but otherwise her condition was without improvement and practically unchanged. On Sept. 3, 1895, we placed her under treatment, or feeding of the thyroid extract; and after one year's treatment she had grown four inches in height, her skin had peeled off and had been replaced by a smooth and delicate skin, the pityriasis of the scalp had disappeared, the old hair had come out, and new, thick hair, of fine texture, had come in, and had already grown longer than the old hair, and new teeth of the second dentition had displaced several of the old remnants of the first dentition. She had become jolly and playful in her disposition, and had learned in speaking to put several words together with sufficient distinctness to be plainly understood. Her growth during the last four months of the year was only half an inch, while in the first eight months it was three inches and a half. In fact, the greater part of this marvelous change was accomplished in the first eight months of the treatment; and although improvement is still going on, it is very much slower than at first. When we consider the age of the girl, eighteen years, at the time the thyroid treatment was commenced, and the little growth and change in her condition during the six years previous, the results noted seem almost miraculous."

This report was made after one year's treatment. She has now been upon thyroid treatment three and one-half years, and during the whole period of treatment has increased in height seven and one-half inches, and in weight thirty-eight pounds. Her mental condition is very much improved.

Dr. Fernald's case, reported by Dr. Osler, has now been upon the thyroid treatment twenty-seven months. This case is of interest, in that the treatment was begun when the child was but four and one-half years old. The case as reported by Dr. Osler is as follows:

"Female, aged four and a half years. Typical cretin.

Weight twenty-eight and a half pounds, height two feet and four inches. Put on thyroid treatment Jan. 1, 1897. At the end of two months she had lost two and a half pounds and seemed somewhat improved. At the end of four months the weight is twenty-two and a half pounds, and she is much improved. The hair has become soft and fine, and the stupid expression is gone. The face looks that of a normal child. She notes everything going on about her; her vocabulary has increased, and she plays intelligently."

Dr. Fernald informs me that at the present time, after twenty-seven months' treatment, this girl has gained fourteen inches in height and twelve pounds in weight; has learned to talk and play, run and jump, and looks and acts almost like a normal child.

The following table gives a brief summary of nineteen cases of sporadic cretinism upon the thyroid treatment in American institutions for the feeble-minded:

REPORTED BY—	Age at Beginning of Treatment.	Height at Beginning of Treatment.	Weight at Beginning of Treatment.	Form in Which Gland was Given, and Dose.	Duration of Treatment.	Increase in Height During Treatment.	Change in Weight.	Change in Mental Condition.
Dr. Chas. Bock, Fort Wayne, Ind.	6½ years	31½ in.	29½ lbs.	Powder ex. Dis. gr. 5 to gr. 1 t. i. d.	2½ years	8.07 in.	+15½ lbs.	Very much improved.
Dr. Chas. Bock, Fort Wayne, Ind.	5½ years	29.32 in.	26½ lbs.	Powder ex. 3 gr. to ½ t. i. d.	3½ years	13.58 in.	+17½ lbs.	Very much improved.
Dr. Chas. Bock, Fort Wayne, Ind.	No record	No record	No record	Powder ex. gr. 1 to 5 t. i. d.	6 months	No record	No record	Fairly good improvement.
Dr. W. L. Athon, Lincoln, Ill.	12 years	36 in.	33 lbs.	Tablet, 2 grs.	2 years	3¾ in.	+10 lbs.	Improved.
Dr. John F. Fitz-Gerald, Rome, N. Y.	18 years	36½ in.	44½ lbs.	Des. powder, gr. 3 to 5 t. i. d.	2½ years	7 in.	+½ lb.	Very marked improvement.
Dr. W. E. Fernald, Waverley, Mass.	4½ years	2 ft. 4 in.	28½ lbs.	5 gr. tablet, ½ tab-let twice a day ...	27 months	14 in.	+12 lbs., lost 6 lbs. first 4 mo.	Learned to talk and play; looks and acts normal.
Dr. W. E. Fernald, Waverley, Mass.	9 years	2 ft. 6 in.	34 lbs.	5 gr. tablet, ½ tab-let twice a day ...	8 months	4¾ in.	Present weight 30 lbs.	Greatly improved; also physically.
Dr. Lucy A. Wheeler, Faribault, Minn.	11 years	32½ in.	36 lbs.	Tablet ex. 5 gr. t. i. d.	2½ years	5 in.	+21 lbs.	Much brighter in every way.
Dr. Lucy A. Wheeler, Faribault, Minn.	9 years	34 in.	30 lbs.	Tablet ex. 5 gr. t. i. d.	1 year	¾ in.	+4 lbs.	Learned to play more intelligently.
Dr. A. H. Beaton, Orillia, Ont.	40 years	38 in.	56 lbs.	Tablets, 5 grs.	3 months	None.	-4 lbs.	None.
Dr. A. H. Beaton, Orillia, Ont.	22 years	48½ in.	65 lbs.	Powder, 5 grs.	5 months	1 in.	Very little increase	None.
Dr. A. H. Beaton, Orillia, Ont.	8 years	36 in.	51 lbs.	Powder, 3 grs.	6 months	1½ in.	Lost slowly	Improved.
Dr. A. H. Beaton, Orillia, Ont.	9 years	32 in.	48 lbs.	Powder, 3 grs.	13 months	3½ in.	About same	Improved.
Dr. A. H. Beaton, Orillia, Ont.	25 years	50 in.	69 lbs.	Tablets, 5 grs.	3 months	None.	Lost	None.
Dr. J. C. Carson, Syracuse, N. Y.	23 years	47 in.	60 lbs.	Tablets, 5 grs.	3 months	None.	Little change	None.
Dr. J. C. Carson, Syracuse, N. Y.	18 years	40½ in.	57 lbs.	Desiccated powder	About 3½ years	7½ in.	+38 lbs.	Much improved.
Dr. J. C. Carson, Syracuse, N. Y.	9 years	34 in.	36 lbs.	Desiccated powder	About 3 months	.....	.....	Improved.
Dr. J. C. Carson, Syracuse, N. Y.	7 years	32½ in.	32 lbs.	Desiccated powder	About 3 months	.....	.....	Improved.
Dr. J. C. Carson, Syracuse, N. Y.	14 years	40½ in.	79 lbs.	Desiccated powder	5 weeks	.....	.....	-14 lbs.

The history of the thyroid treatment of sporadic cretinism is the record of one of the most brilliant triumphs of modern medicine. The first descriptions of this disease were given by Dr. Hilton Fagge and Fletcher Beach, M. B., in 1871. Gull, in 1873, hinted at a relation between myxoedema proper and cretinism. Ord, in 1877, more fully described the cretinoid state, reporting two autopsies where atrophy of the thyroid and mucin in the subcutaneous tissues were the striking changes noted. Kocher noted the similarity between cretinism and the condition of myxoedema, which was brought about by the extirpation of the thyroid. Horsley showed that the removal of the thyroid in a monkey was followed by cretinoid symptoms and death, and that life could be preserved by emplanting a thyroid in the animal's abdomen.

A report was made to the London Clinical Society in 1888, setting forth that cretinism, sporadic and endemic, and myxoedema, operative and idiopathic, and cachexia strumipriva are several species of one genus, all dependent upon the annihilation of the function of the thyroid body. Kocher tried transplantation of the sheep thyroid into the abdomen of persons suffering from myxoedema. Following these operations it was noted that improvement took place before the gland had time to form attachments to the surrounding tissues. The improvement was therefore due evidently to the absorption of the thyroid juice, suggesting the hypodermic injection of the gland. In 1891 Murray employed a glycerine extract of the thyroid. In 1892 the fresh gland was fed by Horvétz of Copenhagen, and Mackenzie and Fox in London, with results which left no doubt about this simple method of administering the gland being just as satisfactory as the hypodermic injection of the juice, or glycerine extract, and more satisfactory than the emplanting of the gland in the living tissues, and devoid of the risk and discomforts of this operative procedure.

T. Telford-Smith and John Thompson in Great Britain and William Osler in America were among the first to treat cases of sporadic cretinism by the injection of sheep thyroids.

An attempt has been made to isolate the active principle of the thyroid, and this it would seem has been accomplished with some degree of success. A brief summary of the present state of our knowledge in regard to this matter is given by Chittenden as follows:

"The thyroid gland manufactures *one* specific substance of marked physiological power—the so-called colloid substance of Hutchinson—a body which, though containing phosphorus, is not a nucleo-proteid; neither is it allied to mucin. It is peculiar in that it contains iodine. This body, when acted upon by gastric juice or by boiling acids, is split into a proteid and non-proteid part, the latter containing all of the phosphorus and the larger portion of the iodine of the original colloid. According to Hutchinson both parts of the colloid are physiologically active, but the non-proteid part, the iodothyron of Baumann, is unquestionably far more active than the proteid part of the original molecule. This substance is apparently the physiological equivalent of the thyroid gland."*

This, the iodothyron of Baumann, is being extensively used in Germany. At the present state of our knowledge, however, it would seem that a thyroid preparation containing all the constituents of the gland is the most satisfactory. The dry powder, either as such or compressed into tablets, is convenient, and clinical experience has shown it to possess all the therapeutic properties possessed by the fresh thyroid.

In 1893, when Dr. Osler, by extensive inquiries, undertook a collective investigation of cretinism in America, he was able to find only eleven cases, and in 1897, after the publi-

*"Internal Secretions, Considered from a Chemico-Physiological Standpoint," by Russell H. Chittenden, Ph. D., 1897.

cation of many reports of brilliant results following the thyroid treatment of cretinism, which had placed medical men throughout the country on the lookout for cases of this condition, he was enabled to report only sixty cases. In the State Institution for Feeble-Minded of Western Pennsylvania, of 590 feeble-minded children admitted since April 20, 1897, there were no cases of sporadic cretinism, and of over 400 cases admitted to the Wisconsin Home for the Feeble-Minded, none were cretins. Upon inquiring of the superintendents of American Institutions for the Feeble-Minded, in which institutions we would naturally expect to find a large percentage of the cretins of the country, I have been able to obtain record of only the nineteen cases given above. These figures all go to prove that sporadic cretinism is very rare in America.

The marked improvement following the treatment of sporadic cretinism with sheep thyroids, especially when the condition is recognized early, and the frightful results of the disease untreated, make its diagnosis of the utmost importance. The symptoms of the condition are clearly set forth at length in Dr. Ireland's "Mental Affections of Children."

The conditions which most nearly resemble cretinism are the Mongol type of idiocy, and the condition of achondroplasia, often, though, as Dr. John Thompson states, incorrectly called "fœtal rickets." In the Mongol, Telford-Smith states there is, as a rule, a more pronounced and general condition of intra-uterine failure of development than in the cretin. The Mongol imbeciles may be distinguished from the cretins by the peculiar Mongolian features, from which they derive their name. Many Mongols, however, have a marked resemblance to cretins, and are often mistaken for them. This resemblance is not as marked in infancy as in older children. In infancy they resemble one another in being mentally backward, often with protruding tongues, and scanty, dry hair. The Mongol baby differs from the cretin

in having soft skin, rather slender limbs, and a thin neck, with normal thyroid. Dr. Thompson points out the following difference in the hands: "The hands of the Mongol imbecile are most characteristic and markedly different from those of cretin babies. The wrist and the metacarpal portion of the hand are small and very soft on account of the smallness of the bones and the yielding character of the ligaments. The fingers are usually thick for the size of the hand, but taper at the tip, and are not square-pointed, as are the fingers ofcretins."

There is nothing in the subcutaneous tissues of the Mongol suggestive of myxoedema.

Achondroplasia is described by Thompson as a foetal disease in which there is an absence, arrest or perversion of the normal process of endochondral ossification in every element of the skeleton in which this process normally takes place during intra-uterine life.

Children thus afflicted are at birth very much more deformed than arecretins. The majority of them are still-born, or are premature, and die within a few days after birth. If they survive, they show no marked mental defect, and only such imperfections as are caused by the deformed skeleton. They show no symptoms of imbecility, and grow to be short-limbed dwarfs of ordinary intelligence. They are likely to be confounded withcretins only in their infancy.

As we would naturally expect, the prognosis of sporadic cretinism treated with thyroids depends largely upon the age of the cretin when placed under treatment. Where the treatment dates from infancy, Dr. Fernald's case, together with a large number of similar cases, give us reason to expect complete recovery, in so far as the bodily growth and the avoidance of deformity is concerned, and very marked improvement in the mental condition.

Allcretins seem to respond to thyroid treatment, the degree varying with the age of the individual when placed

under treatment, being very strong in infants, less so in adolescents, and still less in adults. That adults do respond to the treatment is evidenced by the case, reported by Sinkler, of a cretin who, after the age of thirty, increased nearly three inches in height under thyroid treatment; also, that menstruation, which had not appeared until after the age of twenty-six, and then only scantily, and at intervals of three or four months, became regular and normal; that four additional teeth were cut, and the patient's intelligence was much improved. It might be well to mention the softness of the bones, incidental to the rapid growth, which takes place incretins during thyroid treatment. This condition causes a bending of the long bones closely resembling that commonly produced in rickets. To counteract this condition, the administration of the bone-forming salts, and keeping the patient in a recumbent position as much as possible would suggest themselves, and if the growth be very rapid the discontinuance of the thyroid treatment for a time.

The marvelous transformations brought about incretins by the thyroid treatment, and the resemblance between the Mongol imbecile and the cretin, has led to the trial of the thyroid treatment upon Mongol imbeciles, and to the query as to whether or not Mongol and other forms of imbecility and some cases of epilepsy may not be due to a diminished or perverted function of the thyroid. The reports of cases are at variance, making it evident that in these conditions there is no very marked change produced by thyroid treatment, as in the case ofcretins.

I have had eight Mongol imbeciles upon the thyroid treatment for the past ten months, and without exception their skins seem less harsh, they look brighter and there is evidence of mental awakening. One boy, aged fifteen years, has increased in height from three feet ten inches to four feet one and a half inches, and in weight from fifty-five pounds to seventy-two and a half pounds; the tongue, which

was very rough and constantly protruding from the mouth, has much improved in appearance, and the child now keeps his mouth closed. He takes much more interest in his games than formerly, is able to take part in kindergarten exercises, and shows marked improvement in every way. His speech, however, is still thick and guttural.

Dr. Telford-Smith reports favorably of a number of Mongol imbeciles treated with thyroids. He also speaks of having tried the effect of thyroid treatment upon other cases of idiocy, in which the only resemblance to cretinism was the condition of mental apathy and disinclination to movement or speech, and the subnormal temperature so common in idiots. In children from eight to nine years of age, with a daily dose of one five-grain tablet, he states that he noticed a visible improvement, speech being more spontaneous, the apathy less, and the temperature one-half degree higher, though still subnormal.

Dr. William P. Spratling, in the third annual report of the Craig Colony, reports the result of the thyroid treatment upon five epileptics: "Five cases were selected for this treatment. Four of them were congenitally defective, physically and mentally. Five grains of the dessicated thyroid was administered for the first eight days; then the dose was increased to five grains t. i. d., which was continued for five weeks. The treatment resulted in marked improvement in two cases; while they had been unable to care for themselves at the time of their admission to the colony, they were not only able to do so after the treatment had been in force for three weeks, but they were able to engage in some outdoor work each day. Two more cases were slightly benefited, and one derived no benefit. The changes noted from the administration of thyroids were found mostly in the physical and mental condition of the patients; no material improvement was noted in their epilepsy."

The matter of the administration of thyroids to epileptics

and imbeciles other than cretins is worthy of careful consideration, and the administration of thyroids to a child under observation is so devoid of risk or harmful results that it would seem that thyroid therapy should not be reserved for our cretins alone, but should be given a careful trial in all those cases of imbecility and epilepsy where there is evidence of diminished metabolism.

THE SELF-SUPPORTING IMBECILE.*

BY ALEXANDER JOHNSON, FT. WAYNE, IND.

The question, What shall or can be the future of the trained imbecile, the one who has passed through our schools and learned all we can teach him, or all that we think it is for his interest and ours that he should learn? is in some respects the most important question for this association (or at least for those of us who represent the state schools) to ask and to answer at the present time. Upon our answer to this question, in my opinion, much of the policy of the institutions and the state must depend.

Can any, and if so what proportion of, imbeciles be made to earn their own maintenance, and at the same time society be protected against the consequences of their natural increase? If so, how shall this be done and what must be the conditions of their self-maintaining life? How shall we answer the statesman who asks us, "What is to be the outcome of all these schools and farms and hospitals and workshops which we are asked to equip and maintain?" And how shall we answer the social economist who asks us to show the permanent bene-

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fit which may accrue to the taxpayer, to recoup him for the constant drain on his resources which the maintenance of these large and costly institutions requires? Only as we can and do give satisfactory answers to such questions will our work of training and caring for the feeble-minded, which now includes about ten per cent of their total number, be allowed to expand, as we believe it should expand, until the whole class may be brought under proper care.

There is another consideration which seems to me equally worthy our earnest thought. The feeble-minded command our attention most urgently because they are one class of the dégenerates. We have, at least to some extent, led the way in certain departments of education. May it not also be our opportunity, and therefore our duty, to lead the way in the permanent and wise care of the degenerates?

The ancient Greeks and Romans easily disposed of their superfluous or defective offspring, and many barbarous and savage races to-day follow a similar plan. The method of the physical world which compels the struggle for existence would promptly remove the degenerates of the present if it might have unhindered operation. Christian civilization has advanced too far for us to allow that; so far, indeed, that the least fit have the tenderest care. So-called charity averts from the degenerate the consequences of the struggle for existence, and thereby increases the intensity of that struggle for the normal. It provides for the survival of the least fit, encourages them to propagate their kind, and fosters in turn their increasingly degenerate offspring. Is it not time that science came to the aid of civilization in this respect as it has in so many others, and are not we, whose duties familiarize us with the facts of degeneracy as do those of no other class of public servants, to be among the agents, as well as the prophets, of the new day of progress for the world which shall

come when science and charity unite in the field of degeneracy?

And now I am brought face to face with a disagreeable fact. I have, in common with most of my race and sex who speak in public, an almost morbid desire for originality, and with regard to the self-supporting imbecile I have not a single original idea to propound. Everyone here knows that most of the middle and higher grade imbeciles who come into our hands are quite capable of learning to work, and that with firmness, kindness and common sense they can be so managed that they will work with very reasonable steadiness and persistence. Everyone here is convinced that the proportion of the feeble-minded who are fit to go out from our schools at twenty-one to take a common man's or common woman's place in the great world, with all that that implies, is so small that it may be safely disregarded in adopting a policy. We are all agreed that in the domestic work of the house, the shoe and clothing shops, the garden, truck patch, orchard and fields can be found profitable employment for a large number. And we all know the theory of the colony plan, by which the labor of the better grades may be profitably used in caring for those of poorer mental and physical capacity and in furnishing their food supply.

I suppose every one present who has had the duty of writing five or ten annual reports finds it increasingly difficult to say something new and interesting in them. The straw has been threshed over so often, in our association meetings, the national conference, and other places where we come more or less before the public, that all the wheat has been garnered and we can only show over and over again our acquired stores of wealth. Or, perhaps, a truer metaphor might be that the ore veins have all been uncovered, the best methods of working them contrived, and that what remains for us is not to talk of the hidden treasures of the rocks and of what

may be found in them in the future, but to push on the workings with patience and vigorous effort along the leads now in sight.

While it is true that concerning anything human (excepting Greek architecture, which Lowell calls "the one thing finished in this hasty world") the time will never come when we can say, "The method is perfect, there is no improvement possible; all we can do is to go on and do as we have done;" yet it is also true, if we are working on true lines, that a time comes when general principles are established and the improvements to be made, although very interesting to the specialists, are of a kind that do not appeal to popular audiences. Such a time has come with regard to the care of the insane, the education of the blind and the deaf, the method of hospitals for the sick, homes for the aged, the care of the poor, and some other departments of work whose principles belong to the science of asthenontology. Such a time is rapidly coming with regard to the work of caring for dependent children, the reformation of criminals, charity organizations, and many other things of the kind. Has such a period come, or is it soon coming, with regard to our work?

The answer to this last question depends upon our conception of what our work is. Our theory is fairly well defined, but our practice lags woefully behind it. In saying this I do not for a moment belittle the great work of our training schools. On my way to this meeting I spent a day at each of two of the best schools, and was more impressed than ever by the results that are possible. I was even tempted to ask the question that the chance visitor so often propounds, "Are these children really feeble-minded?" When I say our practice lags behind our theory, it is the theory that the state should care for all the feeble-minded who need care to which I allude. In spite of all the progress of the past decade, there seems little doubt that the disproportion between the need and

its supply, shown by the census of 1890, will be rather increased than lessened in 1900. We are almost tempted to say, with the Spirit of Despair in Tennyson's "Two Voices,"

"Thou are not nearer to the light,
Nor hast thou gained a real height,
Because the scale is infinite."

Yet, notwithstanding such despondent thoughts, we still must believe that we know just what should be done and how to do it; that the work is easily within our power as commonwealths, and that its dreadful bugbear of cost to the taxpayer is only a bugbear, since the results will certainly be an immense gain in the near future by an immediate expenditure which, compared to the economic and social benefits to be secured, is trifling.

In my opinion it is in connection with the work of expansion, which we realize to be so greatly needed, that the labor of the trained imbeciles can be most usefully employed, at any rate for many years to come. There is probably not a state in the union which does not need to provide for from five to ten times as many feeble-minded as are now in her care. Some of the existing institutions are finished. They are, perhaps, as large as they should be. The grading, ditching, planting, road-making, all such work as requires the commonest of rough labor, which would employ the middle grade imbecile usefully, has been done upon their grounds. These should establish colonies, to which the available laborers, not needed at the mother home, should be transferred. In choosing the location of colonies, preference should be given to lands having natural opportunities, which are partly or wholly undeveloped. To take a thousand acres of land, worth five dollars per acre, and make it worth seventy-five dollars per acre, is to earn seventy thousand dollars. If this is done in twenty

years by seventy imbeciles, who during that time have produced the bulk of their own food supply off the land, then these seventy, if under rational management, have surely been more than self-supporting. If seventy other trained imbeciles have done the house, laundry and other domestic work for themselves, and for thrice their number of low-grade idiots, then they also have earned their living.

Here is a squad of ten boys, middle and low-grade imbeciles, working last winter in the woods, cutting up tree tops and other waste lumber into firewood. With the oversight and assistance of an employe, they cut and racked two hundred and forty cords of wood in ten weeks. The wood was worth one dollar and fifty cents per cord before hauling. We paid one hundred dollars to the owner of the wood lot, leaving two hundred and sixty-dollars or twenty-six dollars per week as the earnings of the gang. Deducting the cost of the team which hauled them to and from their work, and the wages of the employe, the boys' earnings averaged about one dollar and seventy-five cents each per week. This is more than the cost of the plain, wholesome food, the simple clothing and the little supervision they need at the colony farm, although much less than the average cost at the institution.

Four of the best of this squad with five others a little brighter than themselves made, during the previous season of five summer and fall months, three hundred and ninety-four thousand bricks, worth thirteen hundred and seventy-six dollars on the yard. The cost of hired help and teams with other expenses was equal to one dollar and fifteen cents per thousand bricks. The wood for burning had been cut on the premises the previous winter; it was worth about one hundred dollars at the most, leaving the value of the boys' labor, at the most conservative estimate, eighty-two dollars and thirty cents each for the season of five months, enough

to support them for a year at the ratio of cost in the colony. These estimates of expense do not allow for executive management. The superintendent's grey matter is thrown in without extra charge.

The above are two concrete and easily shown examples of small groups of self-supporting imbeciles. The boys who garden, milk and plough, make shoes and mattresses, the girls who iron, cook, sew and wait on table, the *aids* of both sexes who help to care for the lower grades, are all self-supporting, though the precise value of their work cannot so easily be demonstrated. It is in the detached department to which the supplies are carried and which has its separate domestic arrangements, "the institutional unit" or cottage, that the most accurate values can be shown.

To make the trained imbecile self-supporting and to demonstrate that we have done so, must be our aim. In addition to what is now being done, one thing is needful: We must dismiss from our minds and from our vocabularies the thoughts and the words which seem to imply that the healthy, trained, adult imbecile is a patient, or a pupil, or a prisoner. He is neither, but he is a laborer, either a skilled mechanic, or an unskilled worker, and usually of the commonest class. He does not need sumptuous appointments nor do they make him happy. He is happiest when he lives with his feet near the ground. A plain building suits him better than a palace. A log hut would be his ideal. He does not need constant medical care, nor high-priced tuition, nor hospital buildings, nor detention within iron bars. He needs outdoor or indoor work and plenty of it, outdoor preferred. He needs plain food and the simplest and plainest clothing.

Another thing also we must be willing to do: We must submit to cross-examination by comptrollers and auditors and finance committees. We must be able to show separately as far as possible the cost of the

various classes of our inmates, which differs so greatly with the grades. Our school class will always be expensive, so will those needing hospital care, so will many of the epileptics. Let us show people what the different classes cost. Say, for example, that the average per capita cost of an institution is one dollar and fifty cents per annum, we must be able to show that the best trained imbeciles are self-supporting; that the next grade cost perhaps forty dollars per annum more than the value of their labor; that the pupils of the school cost perhaps two hundred dollars per annum each, and the low-grade idiots and epileptics sums varying with their need of care. In this way we shall be far more likely to get what we need and ask for, even if it is a county in the Berkshire Hills, like our friend Fernald, or a township in Wisconsin, with Dr. Wilmarth.

You will notice that I foresee useful employment for the next ten or fifteen years in the work of expansion. When that shall be completed, or, let us say when the provision for the idiotic in the United States shall be as nearly complete as the provision for the insane is now, how then shall we provide labor that shall pay, in addition to the production of the institution's own food supply? We cannot, and we ought not, invade the ordinary avenues of commerce; we must not go into extensive manufacturing for the open market. But we have in the various state institutions for the insane, the deaf, the blind, the reformatories and prisons a good and steady market for the finished products of our farms,—butter, cheese, eggs, dressed poultry, hams, bacon, country sausage, pickles, preserves, canned goods, apple butter, and the choicest garden vegetables which will pay for shipment, such as asparagus, celery, etc. We also might have sale in the same direction for some factory products, such as brushes, fibre mats, brooms and the cheaper kinds of clothing, unless all these latter have been monopolized as prison industries.

But fifteen years is a long way off. We older men will all be dead by then, at our present rate of decadence. The younger ones who are just entering the work will have to cross the bridge when they come to it. In the meantime it seems to me that for us, at any rate, the path of duty is clear.

Let me forestall the criticisms which I see flashing in the eyes of my brilliant and ready young friends—say what I have already said by inference. We cannot expect to make our institutions, as wholes, anything near self-supporting. We must carefully guard against letting the public expect that from us, at any rate against giving them reason to expect it by anything we say. We can make certain departments, certain institutional units, approximately self-supporting. We can make a large and increasing number of the trained imbeciles, those whom we “catch young” and over whom we spend years of earnest and costly effort in school work, physical culture and manual training, capable of earning their own living so long as we supply them with profitable labor. The most available and acceptable kind of labor for them consists, first, in producing in the farm and garden as much as possible of their food; second, in doing the domestic work of the institution for themselves, for the younger school children and for the lower custodial grades.

Hence the self-supporting imbecile, whom we set out to seek, is the healthy trained adult, living in an institution which also includes among its inmates, in the same building if necessary, but preferably in separate cottages, all the various grades which we group under the generic term of feeble-minded. To expect all the pupils and inmates of a training school to be self-supporting would be as futile as to expect the students of a college to earn their living and support the faculty. Yet many a self-supporting young man works his way through college.

How large the proportion of the imbeciles who can do this

depends partly on the equipment of the institution, partly on its location, partly on public opinion, partly on the wisdom or unwisdom of the board of managers, but chiefly on the amount of grace, grit and gumption possessed and exercised by the superintendent.

PRINCIPLES OF EDUCATION FOR THE FEEBLE-MINDED.*

BY C. M. LAWRENCE, FT. WAYNE, IND.

Feeble-mindedness is not an absolute state or condition. I mean to say that the line between feeble-mindedness and normal-mindedness is not a fixed affair; that feeble-mindedness is a relative state or condition; that there is as much difference between two feeble-minded children as there is between two children in the grades; that the connecting link between these two varying classes is another varying class we call the dullards. Now, in order to become interested in the personality of any one of these children, you must see and know the child. Because the children I know are each in some way different from every child you know, the study of personality is useless; but in so far as we can find fundamental principles that underlie childhood psychology everywhere, we can meet upon a ground of common interest. Let us consider next some of these fundamental principles.

The first requisite to knowledge is a sensation. Prior to all impressions on sense organs the brain is plunged in deep sleep, and consciousness is non-existent. By the evolution of the species, the brain has armed itself with at least six special

*Read before the Association in New York, May, 1899.

senses, through which it receives impressions of the outside world. After one sensation has been registered in the brain tissue, absolutely pure sensation can never again be experienced; for the second sensation always arouses in some degree the feeling of the first. This is the basis of memory. Indeed, the supposition that the brain tissue makes a record of the sensation is proven by the fact that we remember at all. If the brain tissue has power to record anything, it must be able to record the effect of a sensation. Then, when the second sensation reaches the brain tissue, it finds something there the first sensation did not find; namely, the footprints of the first sensation. Science has not decided how this is done; but the vividness of these footprints depends more on the quality and minute structure of the nerve tissue than it does on the size or symmetry of the various organs of the brain. Recorded sensations are the facts. They are at first the subjects with their relations to each other not yet brought out. When we begin to see relations and contrasts between sensations, or when we are able to know anything peculiar to any one or common to all sensations, we have the beginning of abstract thought. A judgment, or abstraction, is impossible until the child has had at least two sensations. These abstractions are infrequent and of short duration at first; but as the sensations are varied and repeated, they become more vivid, and with this profounder abstraction is made possible. We must not forget that there is absolutely nothing spiritual within the child that is not a reflection, direct or indirect, of the outside world; that the subjective avails nothing until it has been touched and aroused by the objective; that this touching and arousing must be done through the physical organism.

Thus we have reduced the possibility of all knowledge to a physical basis. And we can do this, too, without proclaiming ourselves materialists. We may not know what the soul is; fortunately we do not need to know what its capabilities

and limitations are in order to be sure that we will never have a soul to teach that does not come into our school room clothed in a human body. We cannot take the soul out of the body and deal with it directly; the bodily medium must be reckoned with. Therefore the body is as surely God's as is the soul, and to every devoted teacher the body becomes sacred. Now, if the bodily organism, including, of course, the nerve tissues, be defective, the soul is less often and less effectively reached and proportionately less responsive.

Our province as teachers, then, is not to make souls, but working through this physical medium, it is our duty to reach the soul if it can be reached. And knowing, as we do now, that a defective medium is not a good transmitter of sensation, and that sensation is the first requisite to knowledge, our next duty is to locate the defectiveness in this medium and decide upon the course of treatment it needs specifically. Anyone can, with a little care, determine which sense is impaired; but it is not so easy to decide which part of the sense is impaired. Three things are possible. First, the peripheral organ may be worthless. Second, the nerve leading from the peripheral organ to the special sense lobe may be injured. Third, the special sense lobes themselves may not be able to function. Any one of these conditions may exist in any sense; all three may exist in all the senses, in which case we have an idiot. In many cases the brain cells of feeble-minded people are found to be abnormal; parts of the brain will be too soft, or the whole be much below "normal consistency." Especially where the child has suffered from brain fever, the blood vessels that should carry nutrition are too small, while many of the minute ones are entirely absent. Such brain tissue cannot record sensations that will last. Other brain tissue that for two or three generations has been bathed in alcohol is very much below the "normal consistency," and the same sensation must beat upon it again and

again before the impression is deep enough to be lasting. Now, if you can make up your mind that it is not a *stupid soul* that defies appeals, but that it is an *imperfect and diseased physical* medium through which sensations must pass. that makes the child feeble-minded, you can be very much more generous and patient with that child, and at the same time you will have believed the truth.

If the feebleness is due to diseased brain tissue, or the destruction of the blood vessels that should carry nutrition to the brain tissue, you cannot hope to do very much for that child, so far as intellectual progress is concerned. I shall show you presently, however, that it is possible to make this child a very valuable one so far as manual work is concerned.

Now, it often occurs that when one special sense lobe or organ is diseased, others are normal and active, so that these can, to a very great extent, be substituted for the diseased ones, just as the sense of touch in Helen Keller's case has been substituted for the other senses she did not possess. And again, if the optic nerve, for example, leading from the retina to the optic lobe, be cut off or in any way rendered incapable, the transmission of the sensation is to that extent imperfect. Or if the eye is malformed so that no image is produced on the retina, there can, of course, be no sensation. A perfect sensation depends on a perfect image, perfectly transmitted to the cortex and perfectly recorded; that is, all the parts must function if the whole is perfect. And what is true of the eye is true of every sense. I scarcely need to point out to you now the importance of special sense training. Study your backward child until you know where his physical weakness lies, do all you can to strengthen it, reach his soul through other channels, that are more nearly normal, if he has any; and since recorded sensations are the only helpful ones, don't forget that *vivid records* of a few sensations are more valuable to him than a great many weak ones.

And this doctrine of the physical basis of knowledge, resting on the vividness of sensations, will help us, too, in selecting the subject to teach our children. Dead subjects, presented in a cold, lifeless way, should not be tolerated in any school; but they are worse than useless—they are harmful to the feeble-minded. We must present subjects that carry to the child's brain the most vivid sensation, for weak sensations do not always reach the brain, and when they do are seldom recorded, and an unrecorded sensation does not help the child to know. There are many subjects of special value because they have this vividness. I shall speak briefly of only one.

NATURE STUDY.

It is always new, real, live and concrete. It can be utilized to the greatest advantage. Don't talk to the child about numbers; but while he is learning to distinguish one flower from another, he will unconsciously learn the number of leaves, petals, etc. And, of course, a very dull child will take pride in having *more* flowers in his own garden than a playmate has in his. No child should at first have a special period for number work or any other subject, or be told to direct his attention to any particular kind of work. Children see things as wholes. It is not until very much later in life that the brightest people are able to classify knowledge. Let the child see a pretty window garden or an interesting sand table, where horses and cattle, pigs and dogs, men and women, boys and girls having his name or the names of his playmates, are introduced. A careful teacher will have a variety of colors in such a lesson, and all the number work the child should do can be given without having the child think of numbers. And so the little window gardens in the schoolroom can be utilized in the same way. The child can be taught also a great deal of geography, seasons, color and form, while it is gaining

a knowledge of plant life. Can you think of a better place to study climate and its effect than in connection with animal life? The feelings of love, pity, tenderness and the rest can be awakened by the same subject if at all, and simply because its liveliness appeals to the child with such force that the sensations therefrom are recorded with a vividness that will last. I would not have the teacher neglect the characteristic features that distinguish one animal or plant from the others. The peculiarities of each should be studied carefully and accurately, but always with this broader and more general view in mind; that is, do not have the child specialize before he has generalized. He will not do it, no matter how much you may insist upon it.

So far I have been talking about sensations and the importance of their being permanently recorded in the brain tissue. After sensations have been received and recorded by the brain tissue, abstract thought begins; that is, the soul should start on its course of development I must keep before you the fact that we cannot make souls. We can only repair the physical organism through which the soul acts. After the soul has been awakened by sensations, it is always struggling to manifest itself even in the lowest grade children. This manifestation differs from time to time for two reasons: first, the environments change; second, the condition of the physical organism changes. Now, when the environments remain the same, the outward expression of this soul struggle will differ from day to day in the same child, because the physical organism through which it acts is in some way changed; that is to say, every bit of the child's reaction from applied stimulants is modified if not determined by his physical condition at the time. Then, if so much depends on the tone of the physical organism, our work clearly is to put the physical life of the child in the best possible condition. When the physical tone is good, the sensations are more vivid and

the reactions therefrom are more nearly normal. Calisthenics and gymnastics, with plenty of fresh air properly breathed, do very much in this direction. Besides being beneficial to the child's health, calisthenics and gymnastics do very much to develop the nerve centers in the muscles and spinal cord, and prepare the way for successful manual training. Now, it is true that many people who are not considered feeble-minded have more available nerve tissue in their muscles and spinal column than they have in their skull. And this is eminently true of the feeble-minded. The process by which a normal-minded person forms the habit of doing automatic action is that the higher nerve centers located in the skull direct the centers in the muscles until these centers by frequent repetition direct the muscular action, almost if not entirely independent of the higher centers, so that the thousand little duties we perform every day, and of which we make no note, are done entirely by the nerve centers in the muscles and spinal cord. Taking advantage of this psycho-physiological principle, it is possible to make good workers out of very feeble-minded children. Where the child has none of these higher centers, the process of training is extremely slow. The directing of the muscular centers must be done by the teachers. In our calisthenic classes the more capable children take the arms of the less capable, and push them through the movements given by the leader morning after morning, until the nerve centers in the muscles become capable of directing the body independent of the higher brain centers, which centers the feeble-minded child does not have. Of course, abstract thinking or independent working cannot be expected from people who have none of these higher centers. Therefore, routine work with careful supervision must be provided as far as possible. In an institution where it is the business of the management to employ its children, a place should be made to fit the boy when the boy cannot be made to fit some place the institution already has. In short,

the boy who cannot be made to fit the big outside world must have a little world for him, where he can in some degree be a useful member. And this is another justification for institutions.

Many quite feeble children would be self-supporting in the outside world if it were not for some unpleasant peculiarity of face or form. They are good workers, and often very sensitive to neglect or personal reference. In the economic world where competition is sharp they are driven to beggary. The institution is an excellent place to utilize such labor. They can care for those children below their own grade when they cannot find a place to sell their services for even food and clothing in the outside world.

There is another way in which an institution can do a great deal for these children. It can change the environment of the child to meet his constantly varying impulses. Let me explain a little more fully what I mean. It is now quite generally believed that each individual is an epitome of the race; that each individual experiences in a modified form every emotion and instinct developed by the race in past ages, through its effort to preserve and perpetuate itself. For example, every boy has an instinct for a few months, and perhaps years, to kill and destroy everything he can. This period in the boy's life probably corresponds to the centuries of struggle our ancestors experienced back in the German forests, where the enemy was always strong and ferocious and against which they constantly struggled in self-defense. Thus the instinct to kill is a remnant of that which once had utility in preserving life, and the child should not be condemned because he has it. Everything should be done, however, to encourage the better instincts and suppress the undesirable ones. So all the instincts are, or have been, useful. It is also true that every ripening instinct depends more or less upon the strength of those preceding it, and is modified

by those that follow it. Then the bad, vicious instinct should be treated not only for its own sake, but for the sake of those which are sure to manifest themselves later. If the later instincts are strong enough they may, and often do, change the habits formed by the earlier ones. For it should always be remembered that the instincts themselves are transient; the habits formed while they are passing are more enduring.

Now, if the sum of our habits depends upon the use we make of our instincts when they are ripe, we can readily see the importance of introducing the child to a new subject and modifying his environment at the right time. We must catch the instinct when it is ripe if we hope to have a habit formed as a result of it; we must suppress the instinct when it is ripe if we wish to prevent the forming of a habit. It requires the closest watching to do this work in the best way. In an institution is the only place it can be done at all for the feeble-minded.

In closing, I must ask you to remember that I have not exhausted the subject. I have only tried to present the fact that the beginning of knowledge has a physical basis; that there is a physical reason for the child's backwardness; that there are ways of partly and sometimes entirely overcoming these physical defects; that sensations must beat time and again upon the nerve tissue that is below the "normal consistency" if the impression is to be lasting. Second, I have tried to show that by persistent effort the nerve centers of the muscles can be trained to direct automatic action, even though the child has none of the higher centers to work with; that the wise selection of a subject to teach and the time in the child's life it is to be taught must be governed by these underlying principles; that the institution is the best place in which to shape the environment to meet the peculiarities of feeble-minded children.

TASTE AND REACTION TIME OF THE FEEBLE-MINDED.

BY A. R. T. WYLIE, FARIBAULT, MINN.

(From the Laboratory of the Minnesota School for Feeble-Minded.)

The field of abnormal mind should be a most fruitful one—for psychology, for here nature makes experiments which no one can imitate. What has been done so far in this field has been confined to the criminal, and, more recently, to the insane. With a view of adding his mite to this work, the author undertook the following tests on the taste and reaction time of the feeble-minded, as a preliminary to more extended work in the future:

I.

The sense of taste is dulled or perverted to a greater or less extent among idiots and imbeciles. In some it seems to be absent altogether;¹ in others it remains in a rudimentary state.² The instinct of self-preservation is the most fundamental in animal life, consequently hunger and taste are of utmost importance to the individual. The absence of these we would expect to find in those lowest in the mental scale. Such we find to be the case. These individuals lead a purely vegetative life. However, hunger can exist without taste. This is a fact of common observation among those who have to deal with the lowest grade of feeble-minded children. One child will eat salt with the same relish that most children eat sugar; others will swallow bugs, grasshoppers, sticks, rags, surgical dressings, quantities of pebbles, the dust and dirt of the floor, and even offal, while we meet some who seem to prefer the refuse of the kitchen to a properly prepared meal.

Czerny has made use of this lack of taste as one of his

¹Ireland: *Mental Affections of Children*, p. 308.

²J. Voisin: *L'Idiotie*, p. 130.

tests for an early diagnosis of idiocy. He made use of solutions of sugar and quinine, claiming that the youngest normal children would react to the difference, while idiots would not. Preyer found that his child reacted to the difference from the eleventh day.

To study the condition of taste among the lowest grade of feeble-minded children, the author made use of sugar, quinine sulphate, tartaric acid and salt, applying them to the tongue and noticing if the subject gave any indication of a difference. Thirty-five boys and thirty-one girls were tested. Of these eight girls and fifteen boys, or twenty-four per cent of all, gave no indication of a difference. Eight boys and eight girls, or seventeen per cent of all, showed a difference for quinine; twenty-one girls and nineteen boys, or forty-one per cent of all, showed a difference for tartaric acid; and fifteen girls and seven boys, or twenty-three per cent of all, showed a difference for salt. Thus the taste for bitter seems to be most frequently absent, while that for sour is most commonly present.

To study this taste of the brightest feeble-minded children, solutions of the above substances were made, and these were added a little at a time to a quantity of water until the subject perceived the proper taste, the tongue being cleaned and dried at proper intervals. From the quantity of taste solution and water taken the strength of the solution tasted could be calculated. Twenty children were tested. For fourteen of these the averages were:

For sugar, 1.3 %, *M. V. 0.4, or 1 part to 77; for salt, 0.48 %, M. V. 0.19, or 1 part to 208; for acid, 0.41 %, M. V. 0.40, or 1 part to 244; for quinine, 0.0177 %, M. V. .0062, or 1 part to 5,694.

The strength of solutions for normal people as determined by Bailey and Nichols is for sugar 1 part to 199, for salt 1 part to 2,240, for sulphuric acid 1 part to 2,080, and for quinine 1 part to 390,000. A marked dullness throughout, and especially so for bitter.

*Mean variation.

Six of those tested were unable to recognize the taste of one or more of these substances even when used full strength. With two of them salt was wanting, with three of them sour, and with two of them bitter, in every case being identified with another taste.

Hence, with the feeble-minded, as with criminals,¹ we find a marked dullness of taste. With a few some of the tastes are lacking, while with the lowest grades only one or two may be present.

II.

The reaction times were taken with a Hipp's chronoscope and the common touch key; for sound an electric hammer was used. The current through the instrument was reversed after each reading. Of those making the test twenty-two, sixteen boys and six girls, were considered to have made the test properly. Their ages varied from eight to thirty-seven years, the average being twenty years. The average number of tests for each was twenty-one. The average reaction time was 0.338 seconds, with a mean variation of 0.08 seconds. The normal reaction time lies between one-tenth and two-tenths seconds,² say 0.148 seconds, and the mean variations can be put at 0.04 seconds.³

In the number of tests made the effects of fatigue and practice seemed to about balance each other. Twelve other children were tested. Of these five were unable to perform the test, and seven of them had an average reaction time of 0.538 seconds, with a mean variation of 0.164 seconds.

Sixteen children made the tests for sound reaction. The average number of tests was twenty-four. The average reaction time was 0.293 seconds, with a mean variation of 0.085 seconds. The normal time has been found to lie between 0.120 and 0.180 seconds, with a mean variation of 0.022 sec-

¹Lombroso: L'Hourme, Criminal, Vol. I., p. 325.

²Ladd: Physiol. Psych., p. 476.

³Studies from Yale Psych., Lab., Vol. II., p. 78.

onds. However, fifty-three men in the University of Minnesota gave an average reaction time of 0.214 seconds. The reaction time of the insane to sound has been found to vary from 0.200 and 0.340 seconds, with a high mean variation.¹ On being directed to be quick, eleven children, in a series of five tests, succeeded in reducing their reaction time by an average of 0.012 seconds. Five who did the touch reaction tests were unable to do the sound reaction tests.

Among the children tested there were fourteen Mongols. Of these eight were regarded as having made the tests successfully. Their average touch reaction time was 0.396 seconds, with a mean variation of 0.095 seconds. The average of the other six was 0.570, with a mean variation of 0.160 seconds. Seven of the Mongols performed the sound tests with an average of 0.360 seconds, and with a mean variation of 0.113 seconds.

As would be expected, the feeble-minded have a long reaction time, and the high mean variations seem to be characteristic. To one watching the tests the stimulus often had the appearance of "worming its way through," especially so with those making the slower reactions.

Gilbert found, in his tests of New Haven school children, "that the brighter the child the more quickly he is able to act."²

¹Luke: Dict. Psych. Med.

²Studies from Yale Psych. Lab., Vol. II., p. 94.

RATIONALE OF THE GYMNASTIC TREATMENT OF THE FEEBLE-MINDED.

LUTHER GULICK.

(From Physical Education.)

You will notice that I do not attempt to speak of the whole subject of the relations of gymnastics to medicine, I do not even take the whole of the subject of gymnastics for nervous diseases. I am to speak only of those central disorders which are due to the lack of development, and which can be treated by systematic insistence upon the performance of function.

Before considering the details of the application to this class of cases of the remedial agent under discussion, I wish to very briefly review the more prominent points in connection with its physiological effects on the nervous system. I do this without apology, for while the subject is a simple one, it is ordinarily ignored by both the popular and scientific physiological text-books.

In order to a simple muscular twitch, there is necessary: First, a central organ which is capable of and will originate a peculiar and definite form of molecular vibration. Second, some means of communication between the central organ and the muscle. It is important that this communicating medium shall deliver as much as possible of the original vibration. Third, an organ which will contract under the influence of the stimulus furnished by the central organ.

In order to a complicated muscular movement, such as jumping a high fence, there are needed in addition, nerve centers that shall, from the picture of that fence on the retina, calculate its distance and height, that shall so co-ordinate the nervous discharges which are being sent to the muscles of the body, that the following complicated processes shall occur: The body as a whole is to be maintained in an erect posture; steps are to be taken, whose length is calculated so that

the proper foot shall reach the most suitable spot for the final spring. At this point the whole foot is resting on the ground, ankle, knee, and hip joints are semi-flexed, the vertebral column is arched forward, the neck bent forward, the arms straight down by the sides. At the next instant the anterior fibers of the deltoid, with the superior portion of the pectoralis major, bring the arms forcibly upwards, the biceps flexor and triceps extensor cubiti are each contracted in order to hold the forearm in a position of slight flexion. The forearm is held in a position of semi-pronation; the wrist is held rigidly by its flexors and extensors, the flexors of the fingers are strongly contracted. The effect of all this is that the arm is converted into a stiff and solid lever. At the same moment that the arms are being raised the extensors of the back are contracting with the greatest possible force and rapidity, and the trunk, instead of being crouched forward, is brought up erect. At the same time the head is raised, and thrown slightly backward. The extensors of the thigh, leg and foot on the side on which the body is resting are in vigorous action, while the flexors on the opposite side are at work drawing their leg close up to and in front of the body. Notice the position and motions of the man as his foot leaves the ground; arms, head, trunk and one leg have each been suddenly extended and are consequently moving upwards with a considerable momentum. The leg from which the individual jumps is straightened out with but the toe still resting on the ground. The body has also the forward motion given to it by the run. The remaining motions to be done are to flex the straightened leg, to change the vertical position of the body to a horizontal one, in order that the center of gravity may be as low as possible; to regain the balance of the body on the feet after the obstacle has been passed.

It will thus be seen that while a considerable muscular force is necessary for this movement, the principal demand is on the nervous system. Let me note briefly the effects of this

exercise and thus of the whole class of exercises of a similar nature. One of the fundamental facts of evolution is that the performance of function tends always to an increased differentiation of tissue with consequent improvement in the function itself. In the exercise of which I have just been speaking, the most difficult part is in the estimation of height and distance and the proper co-ordination of muscle for its surmounting, rather than in a great demand on muscular power. In other words, most people cannot jump high because they have not the skill, and not because they are not strong enough. This means that the primary endeavor and the chief effects of such exercise are to further perfect the central nervous organ. It is a well known fact that in the brain of those individuals who have for a long series of years been unable to use certain portions of their bodies, the centers for their control are atrophied, thus, brain lesions follow in the steps of loss of function of a leg or arm. On the other hand, increased activity and more complicated structure is produced in the nervous systems of those who habitually use their muscular systems. * * *

The relation of the activity of certain portions of the brain to the amplitude of the circulation of blood through that organ must also be kept in mind, for these centers which control muscle are in immediate proximity to and closely related with those which are commonly denominated as the more psychical. It is through physical movement and through this movement alone that the undeveloped nervous system of the baby secures its first training, its first development, and more important than either of these, its first judgment and thoughts, and most important of all, the first exercise of its will.

There seems to be an underlying unity in the whole structure of the brain, so that in order to the development of one portion it is important that other portions should also be developed. . I take it that there is something more to this than the mere fact that they are contagious. It is a well known

fact that in those professions which demand great bodily dexterity, the training must begin in early childhood and that at a later period of life no amount of training will suffice to render that individual competent who has not been trained in childhood. This is due, to a large extent certainly, not so much to the fact of the physical conformation of the hand that has been secured, as to the following significant fact, that in order to the perfect development of any center it must be exercised during a certain period of its growth; this time being a relative and not an absolute one. It is relative to the growth of other centers. There thus seems to be a proper sequence in the organization of nerve centers, those of the trunk being followed by those of the shoulders, elbow, thigh, knee, wrist, ankle, fingers, face, tongue and so on. Any marked deviation from this order of development tends to the production of asymmetry with the consequent lack of balance and tendency towards disease. The whole class of diseases resembling writer's palsy are probably the individual results of the violation of this law.

So far I have spoken solely of the training of those centers which have to do directly with bodily movements. There are other faculties, however, not less important than these which are the results of the combined action of considerable portions of the brain which are directly trained by physical exercise. I refer to such as quickness, strength and endurance, physical judgment, courage, and self-possession. There are two elements that enter into quickness, first the strength of the stimulus, for a powerful stimulus going to a muscle will elicit a contraction much more quickly than will a weak stimulus, that is, the latent period is shorter. Second, a muscle which is used to exercise will contract much more quickly than one which is not.

In addition to the muscular element in strength, there is the nervous; a given muscle will contract far more forcibly under strong than under weak stimulus, thus, one of the ob-

jects of gymnastic training is to enable the individual to send out powerful stimuli. These two heads, strength and quickness, then, have to do directly with the training of the highest portion of the individual, that is the will. Other things being equal, the individual having the strongest will will be enabled to get the most work out of the muscles, whether that work is in speed, strength or endurance.

A powerful stimulus can only be sent to the muscles when demanded by a strong will. Exactly what the relation is of the will to the nerve elements which send out the discharge, of course, we do not know. We are simply acquainted with the fact of such connection.

In regard to the relation of the nervous system to endurance, it is simply that the powerful stimuli will produce energetic contractions from fatigued muscles when under ordinary circumstances they would fail to respond with sufficient power to accomplish the exercise. Thus, again, a man with strong will can compel from his muscles longer obedience than can ordinary men. There are many people who have not sufficient will to do physical work till they become really tired muscularly; their wills give out long before their muscles do. With some others, of course, it is just the reverse, and with them a powerful will constantly overdriving their muscles, does not give them sufficient opportunity to repair the damages produced by work, and permanent deterioration is the result.

It will be clearly seen that the class of cases to which gymnastics directed at the nervous system are useful is quite limited and consists in general of only those cases which are backward in some portions or in all of their cerebral centers.

We will now consider two typical cases. The first is one of those unfortunate ones, which, through arrested development in certain directions and unequal growth in others, has resulted in physical inability and lack of normal mental activity of mind. The etiology is obscure. It is, of course, possible

that there was an original injury; possibly traumatic, of some essential portion of the central nervous system, but of this I can obtain no adequate history.

The child is eleven years old, has never had any severe accident, has always been backward in her development, and dependent upon her mother, who is her slave. The parents have felt that owing to her affliction they ought not to attempt to compel obedience, thus, all attempts to teach her in any line have hitherto depended entirely on the ability of the mother to make the child want to learn, which has been but little. There have been, I believe, four other children, all of whom died during infancy. The parents are both well, strong, and of good habits. The child has learned to read a little, I believe has read through the second reader. Some days and weeks she does not seem to be able to read at all. How much of this has to do with her will, I cannot say.

At the time that treatment was commenced, she could walk a little in an uncertain fashion, dragging one foot after the other. The steps consisted merely of a series of small tumbles forward. Any complicated movement whatever was beyond her ability. She could not form judgments of a moving object, and in attempting to catch a ball could not follow it with her eyes, and had no conception as to where it would go or where to place her hands in order to catch it.

Her hard palate is slightly deformed, being arched upward in a longitudinal direction. She cannot say L (ell), but can say (lay), cannot say t nor toe, but two is perfectly said. She can form none of the sounds which include the roughened sibilant, thus, j, h, g, ch (soft).

The exercises that have been given have all demanded strict attention and concentration of mind. No exercise has been repeated to such an extent so as to be done without thought. No exercise has been so easy but that it took all the effort the child could easily make, and, on the other hand, no exercise has been so difficult as to be at all beyond her range.

It will be sufficient, perhaps, to mention simply the lines of work that have been followed, and not attempt to describe the almost infinitesimal steps that were taken in arriving at the results.

Walking a seam in the carpet was for a long time a difficult feat. It involved careful balancing of the body and attention to the feet. Walking across the floor, stepping only on pieces of paper that had been previously laid down, gradually led to doing the same thing over blocks placed at irregular distances from each other and from the line of the course.

Her method of walking was carefully guarded so that she largely overcame the dragging of the rear foot so noticeable at first. She was trained to judge of the motion of objects in the air. This was done by the throwing of balls for her to catch or bat. She learned to calculate distances by throwing at a mark. It would be out of place here to attempt to describe the various devices by which I secured her interest, and made her desire to go on with the work day after day. This, however, taxed my ingenuity more oftentimes than the mere determination of the line of work that should be carried out. Many different kinds of work were done, but all demanding careful control of the body and generally a relation to some outside object. The work was always stopped or changed at once whenever it became impossible to secure the full attention of the child. Periods of rest were given every two or three minutes, for it would be as undesirable as difficult to secure unremitting attention. The reason for such constant effort to train the attention is that in the weak-minded this is one of the weakest points, there being an apparent lack of ability to control the thought. Jumping of various kinds, over various obstacles, from one point to another, landing on toes, on one foot, jumping from right then left foot, and many other forms of exercise were taken.

Exercises were also taken in moderation to increase the general nutrition.

Some of the results of this treatment became evident in a month or so, and she improved steadily during the whole period which extended over something more than a year. She learned to walk passably well, her expression became far more intelligent, she became more robust, learned to speak more plainly, and did all her mental operations with more ease and certainty. An attack of la grippe resulted fatally. It is not to be expected that such unfortunates can ever become really normal people, but a great deal can be done.

Case No. 2 is a boy about fourteen years old, who, his mother tells me, never wanted to do anything. In some directions he is very bright. His deficiencies seem to be in the line of will and number. He has grown very fat, weighing at one time about 140 pounds. Being extremely timid, he has never played with other boys or attempted anything that he was not sure he could do. He could not get both feet to leave the floor at once, could not lie on his back and lift his feet, could not form a judgment of anything moving in air. He could not run more than a few steps. He could not go to school with other children on account of his inability to comprehend number. With him 2 plus 2 would as well make 6 as 4. He could perform long division, but entirely by rule. Six times 2 equal 12, but only because he had learned it so. Sixteen divided by 8 equal 2, because he had been told so.

The boy has been given twenty-three lessons of half an hour each. He now runs fairly well, making a mile and three-quarters one day. He can jump about four feet, can see a ball in the air, can judge and catch it quite accurately, enjoys batting a tennis ball that is thrown to him very much, and in many lines he can do operations that demand both skill and determination. The most important point in this case is the development of the will. He has become somewhat proud of what he can do and is endeavoring to excel. This is the first thing of the kind in his life. For him to face and accomplish a run of a mile and a half involves a degree of resolution that is far greater than it would be in a normal boy. The most in-

teresting effect as yet in this case is that noted by his private teacher, who says that he has taken a decided step forward intellectually.

I will illustrate by a single instance how the work had to be carried on and by what small steps it had to proceed. It was positively believed both by his mother and himself that he could not see any object move in the air without becoming faint.

Catching a ball was consequently entirely out of the question. Taking a foot ball, he was asked to catch it when thrown about three feet. No amount of persuasion sufficed to get him to attempt it. At last he held out both hands and allowed the ball to be dropped about one inch onto them. This was the start which in the course of two months developed into his being able to run and catch it when thrown ten or twelve feet in the air. The one inch was stretched to two, the two to four, and the four to six. A little improvement most days, but an occasional loss, gradually secured the desired end. His efforts and trials on learning to run would have been ludicrous were they not pathetic. Commencing with a slouchy gait, by attention to one point at a time, and microscopical increases of distances, he learned to run a mile and a half in excellent style. To awaken both a desire to do and a consciousness that he can do something, has proven one of the most difficult of tasks.

I believe that this is a case who will become an honored and respected individual, and who will accomplish good work in the world, but who, without the waking up that is coming to his mind through his body, would never be able to accomplish this.

The most interesting work that has been done for years in these lines is perhaps that carried out at the New York State Reformatory, at Elmira, N. Y., in charge of Dr. Hamilton D. Wey. At this institution there are a number of boys and youths who need education in its broadest sense. Their physical natures are miserable; they are slow, small in stature on

the average; coarse in fiber, unable to do movements which involve careful co-ordination, strength or endurance, even keeping in step being too difficult an operation for them. They are mentally totally unable to carry on any processes involving logical ability, for many the simplest processes in arithmetic, addition and subtraction, being quite beyond their ken. Their status morally may be inferred from their presence in the institution. These individuals were found not to be able to profit by the instruction in the class room, while moral instruction seemed to be perfectly fruitless. With great patience classes of the worst of these have been given suitable gymnastics, baths, special dietary, etc., with the result of starting a growth of intellectual and moral power which has raised their marks in the class room and materially shortened their average stay in the institution, as they were released on good behavior.

In closing I wish to call attention briefly, first, to the fact of the total inadequacy of such exercises as walking, rowing and the like for the treatment of these cases. They do not demand sufficient attention and co-ordination, and, however perseveringly they may be pursued, will not produce them. No form of exercise in which the will of the individual is not actively called into play can be of the greatest value in such cases.

Second, to the fact that in physical education, as in all branches of education, the work must be progressive in character, definite in its aims, simple in its steps.

Third, that education, as such, is not primarily connected with health, although health involves it, used in its usual sense. The case we have just seen is healthy, but is not normal.

If I were asked to give a single rule which should cover the prescription of exercise in such cases, I should say that those exercises which demand any quality or ability, will, if pursued perseveringly, produce those qualities, with the single caution that the work commence well within the ability of the individual and be made more difficult only as the individual improves.

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EDITOR-IN-CHIEF:

A. C. ROGERS, M. D.,	Faribault, Minn.
W. E. FERNALD, M. D.,	Waverly, Mass.
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F. M. POWELL, M. D.,	Glenwood, Iowa.
M. W. BARR, M. D.,	Elwyn, Pa.
ALEXANDER JOHNSON,	Ft. Wayne, Ind.

Address: JOURNAL OF PSYCHO-ASTHENICS, Faribault, Minn.

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INDUSTRIAL EDUCATION FOR THE FEEBLE-MINDED.

The advantages of industrial training as an educational process are being more generally recognized. Even in the public schools and in institutions of higher learning, children are found who cannot profit by their methods, and whose only means of education is in the world of fact and experience. They demand concrete methods. This is particularly true of our children. The brightest soon reach their limit in the subjects of the schools. This knowledge soon decays, for it is not within the limit of their daily experience.

All children are, to a greater or less degree, creatures of habit. This, also, is especially true of our children. They dislike new conditions and new surroundings, for they feel in-

capable of meeting them. They find greater happiness in a routine to which they are accustomed and consequently can foresee. This, the psychologists tell us, is due, in great part, to lessened association which arises from fewness of associative paths in the brain; an infantile condition which with our children endures throughout life.

Such being the case, they are particularly adapted to routine employments. The educational world is more and more coming to the view that you must fit the education to the boy, and not the boy to the education. The rat teacher says he teaches the rats something that they can learn, not something out of their reach, and the skillful boy teacher can do no more. The first few years of a normal child's life are spent in getting a very important part of his education,—not from the schools,—the knowledge of his body and of things. In the case of the feeble-minded child this education is in part wanting, and a successful education cannot begin elsewhere. Since our children are lacking in judgment and are unable to properly estimate a situation, the more routine employments relieve them of the effort and embarrassment of judging, and consequently are more acceptable to them.

Attention is continually exercised in the different operations of a trade. Again, the instinctive reactions of children, which are most easily called out by things, aid us here. The calling up of operations to be done and the picturing of those to follow exercise the memory and imagination. And the limited number of new situations which arise exercise their reasoning powers while not overtaxing them.

Thus, while protected from the distracting conditions of larger things of which they are not capable, they are educated to the limit of their powers; they are given an helping hand to that most necessary of all conditions, self-support.

Dr. C. B. Simcoe, formerly Second Physician to St. Joseph State Hospital for Insane, Missouri, has been appointed to the Missouri Colony for Feeble-Minded and Epileptics, at Marshall.

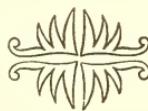
BOOK NOTICES.

"Mentally Deficient Children, Their Treatment and Training,"
by G. E. Shuttleworth, B. A., M. D., London; K. K. Lewis;
Philadelphia, P. Blakiston's Son & Co.

The second edition of this admirable handbook is issued. Every physician, and every teacher of the feeble-minded should possess a copy of this little work. The author has told the whole story in a concise manner, and yet nothing is lacking to make the subject clear. The method employed of denoting important words and phrases by bold-faced type adds to the value of the work.

Considerable attention has been given also to the work of the special classes in England, and a compilation of the special laws governing the examination and training of defectives will be found a valuable feature.

Dr. Ireland is getting out a new edition of "Mental Affections of Children." Churchill is the publisher. P. Blakiston's Son & Co. will handle the work in this country.



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NO. 4.

HOW MAY WE SECURE EFFICIENT ADMINISTRATION?*

BY ALEXANDER JOHNSON, FORT WAYNE, IND.

As soon as the population of a school for the feeble-minded exceeds twelve or fifteen, it becomes necessary to delegate detail work to such an extent that the superintendent cannot witness its actual performance. As the school grows this impossibility of oversight and detail grows more rapidly; probably as the square, if not as the cube, of the number of inmates.

When the number of inmates and pupils of an institution for the feeble-minded exceeds four or five hundred, there is a vast amount of minute detail concerning which the superintendent is only able to judge, if at all, by its results. Nevertheless he is responsible for its execution he must give, at least, general orders about it. When old, long tried and highly competent subordinates are in charge, the detail work goes on for long periods of time with little care or attention from the superintendent. But the disastrous consequences following the loss of such trusted employes, in a school where the superintendent has lost control of the work in detail, warn us all to have some systematic method by which new employes may be instructed.

Usually the greatest number of new regulations are promulgated by means of the bulletin boards. They are rarely based

*President's address to the Association, Polk, Pa., May, 1900.

upon theories, but are directed towards practical conditions. Something wrong is corrected; something evidently lacking is to be supplied. How shall a superintendent give intelligent orders?

The further away the head of the institution gets from the work of the grades, and the greater the variety of the work which comes under one administrator, the more necessary it becomes that he shall secure the cordial and intelligent coöperation of his subordinates. He must impress them with the fact that they are not mere servants, but fellow workers; that they must be intelligent as well as obedient; that if they cannot see a reason for a rule or a command, it is probable that they have misunderstood it; that if they do not comprehend an order, it is probable they cannot obey it properly. Here is an illustrative case: A superintendent found a certain door locked, and that, therefore, two attendants and several aids were obliged to carry food, by a roundabout way, three times a day, into a dining-room, when unlocking the door would have opened a much nearer and more convenient passage. He inquired, "Why is that door locked?" He was told that it was by his own orders, through the matron. He asked, "For what purpose?" The matron had said she did not know, those were his orders and must be obeyed; she did not understand why; it was not her place to question, but to obey. This had been going on for several months. On questioning the matron, an order was finally unearthed to the effect that, on visiting days, between 2 and 4 p. m., twice each week, that door, which opened into the low-grade dining-room from the main hall, must be kept locked. That matron has long since gone to her reward; but there are others.

Without constant watchfulness and intelligent coöperation orders applying to winter conditions will be found in operation in summer, and the reverse. Methods of dealing with children, originally devised to meet exceptional cases or special circumstances, will persist, and be used, under circumstances of a

very different nature. In our work there are numberless details which no one who is not in daily personal contact with them can appreciate. Yet perfect administration demands that they be the subject of regulations. It is true that sound common sense is the one essential qualification for the position of a nurse or attendant, and that no book of rules can ever take its place. Yet there must be method in every detail of a large institution. The particulars of this method can only be worked out by the superintendent acting with his matron, supervisors and attendants.

It frequently happens that, for some temporary purpose, or to meet some emergency, a plan will be hastily devised that incurs a large amount of extra work on a certain department. To meet this demand extra help is detailed. The emergency passes; the extra labor is really no longer needed; but the additional help is very convenient. Some one, who previously had a fair share of work, finds that he or she has now a "*snap*." This may go on for weeks until the habit of taking things easily is confirmed, and, "*We really cannot do with any less help!*" This applies more frequently to help furnished by inmates than to that of hired employes; but it is quite a frequent occurrence with them. It is only by the watchful coöperation of matrons and other heads of departments that this can be avoided.

In our institution I make special efforts to secure coöperation and to get suggestions from all employes. In my book of rules, which I call "Hints to Employes," and which is really a condensation of the "Manual" of Elwyn, the rules of sundry other institutions, and my own house orders and bulletins from July 1, 1893, to May 1, 1898, I ask for suggestions in the following terms. Section 45 says to all employes:

"*Perfection* of method and management is an aim always to be striven for although never to be attained. Persons engaged in the details of work may see possibilities of better methods which escape the notice of the superintendent. Suggestions

for improvements which will inure to the benefit of the children or of the employes, or which will secure greater economy of time, labor or money, are invited from every one, and will always be gladly welcomed by the superintendent."

Section 84, which is addressed to the attendants, reads:

"The attendants should never forget that the comfort and well-being of these children are in their hands, and they should promptly report anything by which they may possibly suffer, and suggest anything by which they may be benefited. A certain and prompt means of communication between the employes and the superintendent is to be found in their 'Daily Reports.'

To our teachers, whom we ought to find the most intelligent and interested (as they are usually the best educated) of our employes, the following paragraphs are addressed:

"103. Study each child in your class as a special and a difficult problem. Watch for the dawning intelligence, and for each sign of improvement, and encourage their slightest manifestations. Do not be satisfied with your work until you see such improvements.

"104. Do not hesitate to try new methods. We are still in the days of experiment, and shall long be so. But avoid mere fads. Do nothing that has not some evident value in developing the weak intellect or will, or in teaching control of emotion, or in securing attention or concentration of mind, or implanting useful knowledge. Ask yourself of every exercise, "*What is to be gained by this?*" and then, "*What has been gained by this?*" Practice nothing that has not some definite object which you can understand and watch for. Help us to discard worthless methods and improve good ones.

"106. Remember that the basis of our training is physiological. The bodies of the children must be as closely heeded as their minds. Encourage and insist on erect bearing, good marching, vigorous, happy playing. Be watchful for the child who lags behind, or does not join in the song or concert recita-

tion or game. There is often a discoverable and sometimes a removable cause for such lagging.

"109. The teachers have many opportunities to make suggestions as to improved methods in dealing with the children, not only during school hours, but in general. They, more than other employes, are expected to be students of both the children and the methods employed with them. Good suggestions are gratefully received by the superintendent at all times, and will always be taken in the spirit they are intended."

On special occasions I make particular effort to draw out criticism and suggestion from my subordinates. I occasionally hold general meetings of employes, when questions of detail are discussed, and requests are made for suggestions for improvement in matters that will benefit either the employes or the children. I tell the employes that I have received excellent suggestions from feeble-minded children which have been adopted with great benefit; therefore, they may be sure that I shall pay attention to suggestions from strong-minded employes.

For the purposes of this paper I made an experiment in this direction a few weeks ago, and although it did not bring out quite as much as I hoped, yet the results were so interesting that I feel inclined to tell you about it. I sent the following circular letter to all our teachers:

"March 1, 1900.

"Please give me, by March 31st, the following:

"1. One or more suggestions. (See section 109 of 'Hints.')

"2. An instance of success in awakening sluggish faculties by physical or other methods. (See section 106.)

"3. A criticism favorable or unfavorable of any method. Describe a method, and answer the questions: (a) What is to be gained from this? (b) What has been gained from this? (See section 104.)

"4. A point or two, physical or mental, discovered by the study of a child in your class."

I have tabulated, and will give to you, a few of the replies that I received. Here are the suggestions offered. Some of them have been already acted upon; some dismissed as valueless; some are among the things we hope to do if we ever "get there."

"That growing girls be cautioned against lifting and carrying the smaller ones."

"To change the hooks in the cloakrooms so that the smaller children can reach them to hang up their own wraps, so they will not place them on the floor."

"To have a special manual class for deaf mutes."

"To be sure the boys' coats are large enough in the shoulders and across the chest for calisthenic exercises."

"A workshop for the school, supplied with hammers, saws and other tools, and the children be allowed to make things."

"That some means be devised to prevent so much quarrelling in No. 2."

"To abandon certain badly shaped benches in some of the day rooms."

"To grade children in school by size; or, when this is impracticable, to have seats to fit different sizes in same rooms."

"To use lacing real shoes instead of slat lacing as a lesson."

"To inspire a sense of responsibility for possession and the use of the pocket handkerchief in the middle grades."

"That we have a well ventilated gymnasium."

"That the lame children receive *less* assistance from the stronger ones and from the attendants, so as to encourage self-helpfulness."

"That the children should have more quiet times in the day rooms in the evenings. We have an over supply of occupation and amusement."

"That part of chapel be spent practicing songs for the following Sunday."

"That the evening schools march out in order and to music."

"That we have more object lessons in place of pictures. Living objects especially make the strongest impression."

As teachers of the abnormal classes, we pride ourselves on the degree in which we give individual attention to our scholars. We all realize that feeble minds cannot be strengthened by platoons, but must be dealt with singly. My requests were framed so as to bring out instances of valuable individual work, and I have a few which may be found interesting. Most of them, however, are quite commonplace, and merely show that we are doing what everyone else is doing. I offer them with the hope of eliciting other and better examples of the same principle from others:

"Instilling a sense of responsibility has awakened a manliness in several boys. This is one way to reach W—P—, who is hard to manage."

"F—G— seemed fairly intelligent, but would not try to do any work. He always said he *couldn't*. I believe I aroused him by creating conditions which would insure his success in some effort. When he found he *could* do something, he became interested and active."

"J—C—, a very stupid boy, has improved by the use of our games, such as 'Drop the Handkerchief.' He now understands all the fine points in that game."

"I had a boy in my class, H—C—, who would try to get away from the ball. He seemed to be afraid of it. I would stand a few feet in front of him, and still he would dodge or shrink from it. I decided he was afraid, and I must overcome his fear before he would catch or throw the ball. Each morning I gave some time to tossing the ball about his head until he thoroughly knew that it would not hurt him. Now he catches and throws the ball very well."

"B—P— is gaining muscular control and self-reliance. In walking to school she used to be supported by a girl on each side. I asked that she be taught to walk alone. The

first few times she fell on the walk or on the stairs. Now she keeps on her feet and often runs."

In answer to my question for criticism of a method, I did not get what I wished. One or two are worthy of your attention:

"I find that kindergarten games are of the greatest value, not only giving physical exercise in a free and enjoyable way, but also helping to develop the imagination, stimulating the laggard, and affording the best opportunity to study the individual child. The children unconsciously show their needs as they play. If, for example, the feet or legs tire, they show a tendency to shuffle and twist around. I change the game at once to one of skipping, marching or some motion song in which the feet play a prominent part. The same methods are applied when children tire of sitting or finger work, which they easily show, and changing the work rests and quiets them."

"In our number work, in fact, in everything in the school-room, I insist upon the children using full sentences, by which will be incidentally gained the proper construction of sentences and the habit of speaking properly. I have already accomplished much along this line with Z—P—. For instance, at first Z— would say, 'scused,' and this one word, accompanied by much gesticulation, was to let me know that he wished to leave the room. Now he has formed the habit of saying 'Please may I be excused?'"

"To know the fatigue point of the children, both mental and physical, you must study them in a close, near way."

"I have discovered, in dealing with two or three of my boys, that there are periods in their existence when what would be in normal children the most flagrant cases of insubordination must be excused and tolerated on the ground of their feeble-mindedness."

"I have had best results, in awakening sluggish faculties, from the games, especially the game of chasing the ball."

"The Swedish system of gymnastics seems to me to be specially adapted for the feeble-minded. The manner of giving commands excites mental effort. Such exercise should not become mechanical. When a movement becomes mechanical it no longer has any mental effect."

"Our children are deficient in their power of observation. Nothing is more important than to cultivate this. Manual work is the key to the situation. They not only learn to *do*, but they learn to *see* by doing."

I have given enough illustrations to suggest the possible value of this method of securing coöperation. To be asked for our opinions, to have our opinions received as valuable, and to see them acted upon and become a part of the regular order of the institution, is felt by all of us as complimentary. Until every employe feels a personal and vital interest, not only in the success of his own department, but in that of the institution as a whole, we shall not have the best possible administration. The plan of requiring special reports and making special requests for suggestions seems to me full of promise, and I hope to carry it out further, not only among the teachers and the heads of the more important departments, but among all the attendants and industrial employes.

A STUDY OF THE SENSES OF THE FEEBLE-MINDED.

BY A. R. T. WYLIE, PH. D., PSYCHOLOGIST AT THE MINNESOTA SCHOOL FOR THE FEEBLE-MINDED.

Man comes to the study of himself last. This is true both of the race and the individual. Anthropology has had considerable to tell us of ancient man, but it is only recently that we have been giving due attention to present man. This is due in part to the growth of criminal anthropology and to psychology. The application, in recent years, of experimental

methods to psychology has restated many of the old problems and created many new ones; hence its phenomenal growth. However, normal psychology must attain a certain growth before that most fruitful field of abnormal mind can be attacked; and it is only recently that we find serious attempts in this direction.

The chief difficulty in the way of psycho-pathology is the undeveloped condition of psychology. It cannot tell us with sufficient accuracy what the normal mind is, and until it can psycho-pathology will be delayed. However, the investigations in individual psychology are steps in this direction, and all work on abnormal mind will prove an efficient stimulus to this end.

The importance of psychological investigations of the feeble-minded is evident from a wider outlook. This is not true so much of the lower grades, or idiotic, who are extra-social beings, as of the higher grades, who are distinctly anti-social. These latter are intimately connected with many sociological and criminological questions of the day, as vagabondage, hereditary crime, prostitution, truancy, etc., and the consequent questions of punishment and legal control. The solution of these questions depends in great part on thorough psychological investigation.

The methods to be employed can be divided into two classes—the objective and the subjective. The most exact are the objective, but they are of limited use. They consist chiefly in making use of various reflexes, chief of which are, the pulse, respiration, iris, and bladder.¹ In the subjective methods the child tells what he sees, feels or hears. The value of such evidence depends, of course, on the mental ability of the child. He may not understand; he may imagine that he feels something when he does not; he may agree to whatever you wish

¹See Tuke's Dict. of Psych. Med.

him to, or in a spirit of bravado he may resist any impression that you may wish to create. Hence, there are great variations and irregularities in the results. But these irregularities are part of the subject; they are one of the chief characteristics of the imbecile. Science cannot be frightened by the difficulties in the way, but must find out what the imbecile is and does do, not what an ideal one might do. Consequently our subjective methods are more or less objective. The investigator must be the judge of the value of the evidence. After becoming thoroughly acquainted with his subject, he must educate him in the tests that he wishes him to perform, and then throw out all that are not fairly representative. The average error will be higher than in normal psychology, but the nature of the material necessitates it.

The senses being the basis of all mental life, the first investigations were made concerning them.

TOUCH.

Observers are agreed that touch is imperfect or obtuse among the feeble-minded.¹ However, it is a subject very difficult to get at, especially among the lower grades, on account of their mental dullness and lack of attention. Lombroso finds a dullness of touch among the criminal and insane.² In order to investigate the sensibility of touch among the higher grades of feeble-minded children, the author made use of Scripture's touch weights, the common compass aethesiometer not being applicable. There were twenty of these weights, ranging from one to twenty milligrams. The back of the hand was the point selected for testing. The method of work was to begin with the smallest weight, and find the one whose touch was just perceptible. There were thirty-two boys and thirty-seven girls tested. The results were:

¹Ireland: *Mental Affections of Children*, p. 308.
Sollier: *Psych. de l'Idiot et de l'Imbecile*, p. 54.

²L'Homme Criminel, Vol. 1, p 315.

	Left Hand	Mean Variation	Right Hand	Mean Variation
Boys	3.7	3.4	3.5	2.8
Girls	2.3	1.9	2.3	2.6

The normal, according to Scripture, is 2.0. This shows touch to be considerably dulled among the feeble-minded, especially among the boys. The high mean variation is very noticeable, and is characteristic of the feeble-minded. Dividing the girls and boys into three groups, according to their mental ability, as estimated by their teacher, A being the highest, we have:

	Left Hand	Mean Variation	Right Hand	Mean Variation
Boys—A.....	3.5	3.8	4.3	3.8
B.....	2.0	1.5	1.5	0.8
C.....	7.3	6.6	6.8	5.9
Girls—A.....	2.6	1.9	2.3	1.8
B.....	1.4	0.7	1.8	1.2
C.....	2.9	3.5	2.9	3.5

This further indicates that the fineness of touch depends on mental ability. This is more evident when we consider the fact that there were a number whose touch threshold did not lie within the range of the weights. Of these there were four boys graded C and eight girls graded, one A, one B, and six C. Three boys graded C and one graded B were unable to perform the test; also, four girls graded C and one graded B.

Among those tested were six Mongols. These all showed a remarkable dullness. Four of them did not come within the range of the weights. The other two gave readings of eighteen and twenty.

PAIN.

That a large number of the lower grades of feeble-minded children lack in some degree the sense of pain is a fact of frequent observation.¹ They beat themselves, pound their heads against the walls and floors, pick holes in themselves, bite

¹Ireland: Op. Cit., p. 404. Sollier, Op. Cit., p. 54.

themselves even to making great ulcers, and pull out their hair with no seeming discomfort. One girl when angry will scald herself severely. However, the total loss of pain is not thought to be so common as among the insane.²

For the purpose of investigating the pain sense of the feeble-minded, the author made use of Cattel's algometer. This consists of a spring dynamometer, by means of which a given pressure can be exerted on any surface. "Attached to the lower end of the spring is a cylindrical piece of brass. This is capped with hard rubber, which is applied to the surface to be stimulated. The cap which comes in contact with the skin is hemispherical, and about eight millimeters in diameter. The pressure is exerted by the hand of the experimenter, and the amount of pressure is indicated in kilograms." The stimulus was applied to the volar surface of each hand over the fifth metacarpal, and to the forehead about two centimeters above the nasal. The pressure was increased at rate of two kilograms per second. Each child was given five trials, seven days apart, during the summer of 1899. Taking the children's reaction time at 0.338 seconds,³ and the normal time at 0.150 seconds, the results were reduced one kilogram. The mean variation was calculated for each person, and then averaged. The results were as follows:

FEEBLE-MINDED CHILDREN.

Feeble-minded Children	Left Hand	Mean Variation	Right Hand	Mean Variation	Fore- head	Mean Variation
37 Boys.....	5.6	0.96	5.7	0.95	2.8	0.67
38 Girls.....	3.0	0.75	3.2	0.78	1.4	0.56

²Ireland: Op. Cit.

³Journal of Psycho-Asthenics, March, 1900.

NORMAL PEOPLE.		Left Hand	Right Hand	Fore-head	Mean Variation
Griffing ¹	128 students—men.....	5.7	.....	3.3	0.008
Griffing	98 students—women...	3.6	.....	1.3	0.008
McDonald ²	142 men.....	6.89	7.13	.....	.....
McDonald	46 women	5.06	5.01	.....	.....
McDonald	20 professional men.	3.26	3.72	.....	.....
McDonald	27 women, non-labor	3.38	3.45	.....	.....
McDonald	9 slum men.....	13.27	13.61	.....	.....
McDonald	34 men, Boston, un- employed.....	9.81	9.77	.....	.....
McDonald	9 women, Paris, criminals	9.36	9.00	.....	.....

Comparing our results with those of Griffing, we find that our children are more sensitive in their hands than normal people. The forehead, probably, gives more exact results, as the structural conditions are more constant. Here the boys are much less sensitive, the girls being about normal. The results of McDonald, although obtained with the same instrument, are in some respects higher, showing, as he contends, that sensitiveness to pain depends on sociological condition. Granting this, the pain sense of these children would not be obtuse. Our results show the girls to be more sensitive than the boys, and both are more sensitive in their left hands, in these respects agreeing with normal people.³

Grouping the children into three groups according to mental ability, A being brightest, we have:

	Left Hand	Mean Variation	Right Hand	Mean Variation	Fore-head	Mean Variation
Boys—A.....	4.4	1.02	4.9	1.18	1.8	0.56
	6.5	0.86	6.2	0.91	3.4	0.76
	5.4	1.08	5.5	0.92	2.8	0.66
Girls—A.....	3.3	0.87	3.5	0.73	1.5	0.54
	2.8	0.58	3.0	0.76	1.4	0.59
	2.9	0.79	3.1	0.87	1.6	0.67

The brighter boys have a greater sensitiveness for pain than the duller boys. With the girls such is not the indication, except, perhaps, on the forehead. Thickness of hands lessened the sensibility for pain, thinness of hands increased it.

¹See Psych. Rev. Monographs, No. 1.

²Report Commissioner of Education, 1897-98, Vol. 1, p. 1162.

³University of Iowa Studies in Psych., Vol. 1, p. 11.

Pain on the forehead continued after the stimulus ceased with twenty-two boys in 33.5 per cent of trials, and twenty-seven girls in 37.7 per cent of trials. With the greater number of the children this occurred only one or two times.

Five boys, or 12 per cent of those examined, gave from one to five tests above the reading of the instruments (13 kilograms). With one boy this was always the case. The readings taken showed the boys less sensitive than the average. Two girls, or five per cent of those examined, gave readings above the range of the instrument.

The ages of the children varied from fourteen to twenty-five years. The sensibility to pain was not observed to depend on their age.

Griffing¹ concludes that variations in sensitiveness to pain is due to "constitutional nervous differences," and to thickness of skin, propositions to which we agree. Gilbert² finds that sensitiveness decreases with age up to nineteen years among normal children, and that their mean variation is high. Carman³ finds that dull children are less sensitive to pain than bright ones, and those dull in mathematics are more sensitive on the right side. With this last statement our results do not agree.

MUSCLE SENSE.

Among the lower grades of feeble-minded children we find those among whom the muscle sense seems to be absent; they sit or lie all day, and never move unless forced to by some outward circumstance. Among those of higher grade it is lacking, as shown by difficulty in walking and moving themselves. This deficiency can exist without marked deficiency in the other senses. Children have been known who could learn to read and write but not to dress themselves.

¹Op. Cit., p. 15.

²Op. Cit., p. 11.

³Amer. Jour. Psych. April, 1899, p. 396.

With others this sense may be excessively developed, as shown by a continual movement and a desire never to be at rest. Here we meet the tics and various automatic movements of feeble-minded children.⁴ Fully fifty per cent of low grade children have some such movements.

In order to test the muscle sense of our school children, the writer made use of a series of weights, all of the same size, ranging from 100 to 130 grams, in steps of three grams. The child was required to lift each weight by thumb and forefinger, in this way comparing the one weighing one hundred grams with each of the others, and then to state which one seemed the heavier. Each test was repeated in an inverse order.

Twenty-three boys and twenty-nine girls were tested. Among the boys three were unable to make the test, and four, or twenty per cent, could detect no difference in the series. Two per cent would be a fair estimate for normal children.

The only figures we have for normal children are those given by Gilbert for Iowa school children. However, he used weights ranging from eighty-two to one hundred grams. Comparing our results with his, we find that our boys have an average of 2.7 grams higher. Grouping our boys according to mental ability, we have the following averages as the least perceptible difference in grams:

- A. 7.7 ± 2.9
- B. 9.2 ± 3.0
- C. 8.3 ± 4.5

This shows a finer perception, with least variation, on the part of the brighter boys.

Of the twenty-nine girls examined, seventeen, or 58.6 per cent, could perceive no difference within the limit of the series. The twelve remaining girls gave an average only 0.5 grams higher than Gilbert's figures for normal girls. Grouping them according to mental ability we have:

⁴See Voisin: L'Idiotie, p. 138.

- A. 5.7 ± 2.2
- B. 7.1 ± 4.6
- C. 9.8 ± 3.7

This also shows a finer perception on the part of the brighter girls. Those who could see no difference within the limit of the series were thus grouped, A two, B eight, C seven.

Thus we find a dullness of the muscle sense of the feeble-minded, varying inversely as the mental ability.

HEARING.

Observers have not had much to tell us of the hearing of the feeble-minded. Deafness, however, is thought to be less prevalent than among normal children.

Our tests consisted in finding the highest and lowest perceptible tone and the least perceptible difference of tone. Sixteen boys and twenty-one girls of the larger singing class were examined. For finding the highest perceptible tone, Galton's Whistle was used. For the boys this consisted of 53,000 vibrations, with a maximum of 104,000 and a minimum of 29,600. For the girls the average was 63,000, with a maximum of 125,500 and a minimum of 25,500. The average for normal people is usually given at 50,000. For finding the lowest tone Appun's Reed was used. For the boys this was found to be 18, with a maximum of 22 and a minimum of 14; and for the girls it was 18, with a maximum of 30 and a minimum of 13. A tone of 16 vibrations is usually given as the lowest for normal ears. In order to find the least perceptible difference of tone, a tone tester was used, which consists of a reed whose length can be adjusted so as to give the various tones of an octave. The tone A, 435 vibrations, being given, we then proceeded to find what difference of tone above and below this the child could distinguish. For the boys this was 7-16 tone, with a mean variation of 2-16; and for the girls it was 9-16, with a mean variation of 2-16.

Our experiments show nothing abnormal in respect to hearing. However, they were performed on our brightest children.

VISION.

The visual apparatus of idiots is generally good.¹ However, seven or eight per cent have been found blind from their first year. Strabismus is frequently found, and nystagmus and squinting are common. Abnormalities of the iris and pigmentary retinitis are also found. Schleich finds hypermetropia very common among idiots and imbeciles.²

The common means of testing vision by means of a Snellen test chart is only of limited use among the feeble-minded, being, of course, limited to those who can read. However, twenty-five boys and nineteen girls were tested with it. Of these only three boys, or seven per cent of all, had normal vision in both eyes. Nine per cent of the children had vision of 6/8 and the remaining eighty-four per cent had vision varying from 6/12 to 3/30. Dr. West found forty-one per cent of the children in the schools of Worcester, Mass., with defective vision. Eighty-four per cent of the children were astigmatic.

This test being controlled by errors of refraction, and being of limited use, we sought another. To this end we made use of a color wheel on which was mounted a piece of red paper in the usual manner, so that any amount of white could be mixed with it. The various shades thus produced were compared with a piece of the original red paper. Beginning with no white on the wheel, white was gradually introduced until a difference was noted, then reduced until no difference was indicated. The mean of these readings was taken and the variation noted.

For thirty boys the average was thirty-two degrees, with a mean variation of nine degrees; for twenty-three girls the aver-

¹Ireland: Op. Cit.

²Voisin: Op. Cit., p. 125.

age was twenty-three degrees, with a mean variation of seven degrees. According to the investigations made to establish the validity of Fechner's Law, the normal would be 3.6 degrees. Consequently we have a visual dullness on the part of the feeble-minded, it being six to eight times that of normal people.

Grouping the children according to mental ability we have:

	BOYS.	GIRLS.
A.	16.4 ± 5.8	15.6 ± 4.5
B.	29.8 ± 11.2	14.8 ± 5.6
C.	50.7 ± 8.3	40.0 ± 10.7

Eight boys and five girls, who were unable to perform the test, were graded C.

Thus we conclude that there is a dullness of the visual sense among the feeble-minded.

Voisin says that the visual field is almost always modified among the feeble-minded.¹ Born criminals have been found to have visual fields remarkably limited in extent, particularly in the upper and inner halves, and with very irregular boundary lines. Those whose visual fields are limited also show deficiencies in their other senses.²

Having mapped the visual fields of fourteen feeble-minded children, they were all found limited, most of them to a remarkable extent. One boy and one girl had central vision only. The fields were limited to the greatest extent in the upper and inner halves and to a slight extent in the outer halves. The fields were as a rule asymmetrical, one being limited more than the other. This was particularly true of the paralytics. The boundary lines were as a rule irregular. There was also a variability in extent noticed, which has also been found among the criminal class.

When we remember the origin of the eye, how it began as a bud from the anterior cerebral vesicle, and that the retina is really to be considered as a part of the brain, we see the im-

¹Op. Cit., p. 126.

²Lombroso: *L'Homme Criminel* and *La Femme Criminelle*.

portance of these results. If the growth and development of the brain is retarded or interfered with, we would expect, then, some indication in the eye. That this is true, our result in the case of the paralytics has shown, as well as the one of a limited field on the part of the feeble-minded. The value of these facts in the diagnosis of accidental idiocy or in making a prognosis must be left to future investigation.

RESULTS.

Our results show, on the whole, a marked sense dullness on the part of the feeble-minded, with a very characteristic high mean variation. Is, then, this deficiency due to imperfections of the sense organs, or is it chiefly central? Seguin has defined idiocy as an "intelligence badly served by sense organs." With this definition no modern author agrees. Idiots are defined as beings more or less deprived of intelligence. However, such cases do infrequently occur, and have been grouped together under the name of idiots by deprivation.³ In order to produce such a condition the sense deficiency must be great, such as the loss of both sight and hearing. But such a deficiency exists among only a few feeble-minded children.

Given a sense deficiency such as is common with our children, and a normal intelligence, the child would soon, by the processes of comparison and reasoning, practically overcome such deficiency, so as to be considered a normal minded person.

In all mental processes, however simple, the mind acts as a unit, the results of such being conditioned to a greater or less extent by the so-called higher processes of the mind. After the first few times no child has a pure sensation, for the reproductive processes come into play, and we have, to a corresponding extent, perception. The mental life of some idiotic children is no doubt limited to sensations. In general terms, lack

³Ireland: Op. Cit.

of appreciation is the chief mental characteristic of the feeble-minded. This is due to defect of reproduction and discrimination. Since "defective mentality always denotes defective morphology," defective reproduction would mean defective neural continuity in the brain, and defective discrimination would mean fewness of conducting paths. "Bernardini, after reading the cases of idiocy recorded in medical literature, has come to the conclusion that diminution in the number of nerve cells in idiocy, and changes in the number and form of their prolongations ought to be ranked as sufficiently proved." Thus the pathological conditions agree with what we would expect, theoretically, from considerations of their mental states. Consequently sense dullness can, in great part, be explained by lack of discrimination, which is due to cerebral conditions otherwise known to exist. However, defect of sense organ does exist, as we have seen when considering the visual fields of the feeble-minded. Consequently we are confirmed in the opinion that the chief lesion of idiocy is central, and not peripheral, as most modern authors are agreed.

Considering the point of pedagogical suggestions, we find that our work emphasizes the importance of sense training. The senses lie at the basis of all knowledge, and they must be trained to their highest efficiency in order to get the best results. The senses are not of equal value for the normal child, and they vary in value to a greater extent among the feeble-minded. Consequently each child's best sense should be cultivated, and then the others aroused and associated with it. To these ends all forms of physical and manual training are of great value.

As a consequence of this different sense capital, we deduce the result of the importance of individual teaching. However well the normal child may be able to get along with, or in spite of, the present wholesale methods, for the feeble-minded child this is an impossibility. For his education pedagogical meth-

ods must be especially adapted to his case, for it is like no other. Psychology has had much to learn from pathology, and we hazard the opinion that pedagogy has at least as much to learn.

Another consequence is the importance of the psychological examination. To apply particular methods to an individual case, the conditions must be known. These can only be brought out by such an examination. Some day this is destined to become a part of all pedagogical procedure. At present it is a rather ambitious forecast for both psychology and pedagogy.

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EDITOR-IN-CHIEF:

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M. W. BARR, M. D.,	- - - - -	Elwyn, Pa.
ALEXANDER JOHNSON,	- - - - -	Ft. Wayne, Ind.

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MINUTES OF THE ASSOCIATION.

TWENTY-FOURTH ANNUAL MEETING, MAY 29-31, 1900, POLK, PA.

FIRST SESSION.

TUESDAY AFTERNOON, MAY 29, 1900.

The Association was called to order at 4 p. m. by the President, Mr. Alexander Johnson, of Fort Wayne, Ind. The report of the Secretary was read and adopted.

On motion, Dr. Barnett of Lincoln, Ill., and Dr. Simcoe of St. Joseph, Mo., were elected members.

On motion of Dr Fernald, it was voted that the President should appoint a committee on organization. Dr. Fernald, Dr. Murdoch and Dr. Knight were appointed such a committee.

On motion of Dr. Knight, the President was empowered to appoint a committee on time and place. Dr. Knight, Dr. Rogers and Dr. Dunlap were appointed such a committee.

The Secretary: We have two invitations for next year: From Mr. Johnson, to Fort Wayne, and from Dr. Keating to Baltimore. Dr. Fort also suggests that we go to Washington.

A paper on "The Etiology of Feeble-Mindedness" was read by Dr. William N. Bullard, President of the board of trustees of the Massachusetts Hospital for Epileptics.

DISCUSSION.

A Delegate: What means have been adopted for keeping statistics?

Dr. Bullard: Statistics ought to be collected. We are not going to gain much from medical or surgical work in treatment, but there is an opportunity to prevent, if we can only determine the causes of feeble-mindedness. In going through about one hundred of my own cases before I came here, I found eighty-four were congenital. About thirteen were caused by meningitis and six caused by trauma. The proportion caused by severe labor is much greater than is ordinarily supposed to be the case. From only a hundred cases one can determine nothing. If all the institutions could collect statistics, they could have thousands, and from such numbers we might be able to determine causes, and thus be able to prevent the existence of this condition.

Dr. Wilmarth: A committee was appointed several years ago to select some uniform system for collecting statistics. A great many cases might be brought together from the records of the institutions, and much valuable information might be obtained.

Dr. Barr: In preparing a paper to be read at Atlantic City, I have studied 3,040 cases, and I have collected nearly 10,000

cases here and abroad. A good deal has been written on the etiology of idiocy, some of it of value and some not.

Question: What proportion of cases is hereditary?

Dr. Barr: I think the majority of all I have studied—at least seventy-five per cent, and perhaps one hundred per cent.

Dr. Polglase: If we could learn the causes of idiocy in this way, it would be of inestimable value. It is difficult to get the history of cases, and even if we have the absolute history we cannot always determine the causes. I have 150 inmates without any history, some of them exceedingly interesting cases.

Dr. Barnett: I coincide with what has been said in regard to the value of some uniform system of collecting statistics. I find trouble in the inaccuracy of the statistics given us. In looking over some two or three hundred applications I have cast aside the history of most as worthless. People do not answer questions in a satisfactory way. In the new applications for this year I have tried to be more definite, but the answers are still unsatisfactory. Parents do not know, or do not care, to answer the questions. I think it would be a good plan to have a committee appointed to prepare some system of uniform statistics. I should take pleasure in rendering any assistance.

Miss Gundry: I shall be glad to furnish any statistics that I can.

Dr. Keating: I shall be glad to help in this matter, but parents generally object to answering questions. The cause which may be very important to the physician they generally neglect to mention.

Dr. Dunlap: Parents do deceive, either willfully or otherwise. They keep back what is really for the good of their own child. This is not confined to poor families. The very best families will deceive in this respect. I think this matter of statistics is very important.

The President invited General Wiley, trustee of the Polk Institution, to speak.

General Wiley: I am delighted to be here. I can see readily that the method outlined would be of great advantage to the medical fraternity, especially to those who look after diseases of the brain. It seems to me that each institution should prepare the best possible records and bring them together for discussion.

Dr. Knight: We all know how vital this question is, and if the Association is prepared to take some such step to get uniform statistics as to the history of the children, I would suggest that it ought to be ready to consider the question of the prevention of the marriage of the incompetent. I think that ought to go hand in hand with this idea of collecting uniform statistics.

Dr. Murdoch: I appreciate the paper that has been read. Every institution, of course, has its own form of collecting statistics, and probably all differ in some minor respects. I should be glad to adopt a system that would give us some uniform statistics. I am not at all pleased with the statistics that we collect here. The questions have not been modified since this institution was opened, three years ago. It has been my intention to modify the blanks, for some of the questions are out of date. We ask, for instance, if the parents of the child were scrofulous; we don't know what that is now. The idea is to have the questions as simple as possible. We also request that the parents be aided by their family physician in answering the questions.

Dr. Dunlap: I have expected the family physician to aid in answering the questions, but the result generally is that the physician writes: "I approve of the way the questions are answered, and I think the child is a fit subject for your institution." That is all the knowledge I can get from a family physician.

Dr. Fernald: I think this is a vital question, and I would move that a committee of three be appointed by the chair to

draw up a syllabus or scheme for the collection of uniform statistics for the study of the etiology of feeble-mindedness, and that blanks be prepared for the use of the Association. I would suggest that it be in the form of a card index, so that it could easily be handled and duplicated. If we could eliminate those cases that we know very little about, which make such an uncertain factor in our statistics, we should add to their value. We want to confine ourselves to definite facts, and should eliminate those which are largely imaginary. In Massachusetts the physician fills out the blank, and as a rule they are very intelligently made out. There is a notion among some physicians that it is a mere formality, a bit of red tape to get the child into an institution. If the physician understands that it is important, it is not difficult to get a pretty full history. I do not see why we should not start de novo, and confine the work to the cases where the facts can be obtained. If we draw up the syllabus wisely, some information can be obtained which we do not now possess.

Dr. Rogers: I second Dr. Fernald's motion. When I began my work at Faribault some one gave me an etiological form that I was told was approved by this Association. I have used it fourteen years and a half, and have collected data on about fourteen hundred cases. About four years ago Dr. Smith became interested in this matter, and has been collecting statistics. I would suggest that Dr. Smith be made a member of this committee.

The motion was then adopted, and Doctors Fernald, McDowell and Smith were appointed a committee to prepare the syllabus and blank.

President Johnson: We have recently added some questions to our blank, the names of the child's grandparents, paternal and maternal, and the maiden names of the grandmothers and of the child's mother. The State Board of Charities has an alphabetical card list of twenty or thirty thousand

names of persons, inmates of reform schools, insane asylums, etc. Besides that there are subsidiary catalogues. We send monthly records of our admittances and discharges, and they are added to the card list. In the returns we get a number of facts concerning the hereditary history of those people that we have never dreamed of. We find mothers and fathers and grandfathers and grandmothers of the children paupers, criminal or insane. No State Board of Charities is well organized if it has not an alphabetical card catalogue of its defectives and dependents. The usual method is to collect statistics of no great value, and to neglect collecting those that might be of great value. When people are thoroughly convinced that feeble-mindedness and idiocy are hereditary, we may be able to check their increase.

Dr. Wilmarth: Does not confusion arise in regard to these names?

Mr. Johnson: Yes, many names are duplicates but as soon as you begin to collect statistics of a state like Indiana, that has been settled so long, you can identify a few hundred families, and from their descendants you can find the people who largely populate the insane asylums, the poor asylums, the school for the feeble-minded and the reformatories. There are, of course, a great many besides, but those are our main supply.

Dr. Bullard: The questions should be simple and few. Many investigations of this kind fail from the multiplicity of questions, and the difficulty of getting the work done. As a neurologist I shall be happy to contribute what I can in regard to special cases, as for instance spastic paralysis, cases which are not sufficiently feeble-minded to enter institutions.

Dr. Murdoch: I have a few microcephalic heads that I wish to show; also, three children on whom craniectomy has been performed. None of the children have been improved by it.

(Dr. Murdoch then brought in several children. One was a little girl of seven who had been in training a year, and is now picking up something in the way of kindergarten training in games. A little boy had improved in habits, but the improvements were to be attributed quite as much, in his opinion, to general training as to the result of the operation. Another case was that of a boy who was injured by the kick of a horse when about a year old. Epilepsy developed. After a year or two he was operated on, but it was of no benefit. He is subject to profound epileptic seizures, averaging one a day.)

Question: Have any of these children brothers or sisters who are imbecile?

Answer: Yes; three or four.

A paper entitled, "The Report of Six Cases of Microcephalies," was read by Dr. M. W. Barr of Elwyn, Pa.

Dr. Wilmarth: A paper like that of Dr. Barr's removes the stigma sometimes thrown on our Association of not doing truly scientific work. I congratulate Dr. Barr.

Dr. Polglase: That is a paper which I shall be glad to have in print for reference. It is of fascinating interest.

Dr. Fernald: A series of cases like that written up in that exhaustive manner are worth a great deal for future reference and for comparison,—worth all the theories that we could put together. We ought to do more of that sort of thing.

Dr. Barnett: I have been delighted with the paper.

Adjourned at 5:30 p. m.

SECOND SESSION.

WEDNESDAY MORNING, MAY 30, 1900.

The Association spent the hours from 9 to 11 in the morning visiting schools and industries connected with the institution. At 11 a. m. the meeting was called to order by the President.

On motion it was voted that the President should appoint two committees, one on program and one on the publication of the "Journal," three members on each.

An address on "The Surgical Treatment of Epilepsy" was given by Dr. W. N. Bullard.

DISCUSSION.

Dr. Polglase: In the case of operation, which antiseptic solution would you consider best? Would you, for instance, use corrosive sublimate?

Answer: I should not object to corrosive sublimate.

Question: In what strength,

Answer: The usual strength, which is one to one thousand, I think.

Dr. Carson: A case in Syracuse came to my notice, of operation for an injury. I am sorry that I cannot give all the facts in detail. It was a boy shot accidentally, about two years ago, I think, somewhere about the forehead, and the ball lodged within the cranium. After the accident the wound was probed, but the bullet could not be located. Certain marked pyaemic symptoms developed after the injury, and the surgeon who performed the operation told me that the boy was suffering from blood-poisoning, the result of the injury. After his recovery from the accident, epilepsy developed and continued until a few weeks ago. The mother was very anxious about the boy, and he was taken to a physician in Syracuse who applied the X-rays and located the ball. After trephining, the probe was inserted and the ball was touched at once and removed. What the result will be I do not know, of course, but it was a very interesting case. To know the final result of such cases they must be watched for a long period of time, as following any operation where tissue is broken up by the knife or other means, cicatrization goes on, and we never can tell what

effect it may have. I know in many operations of craniectomy, operations where there has been apparent benefit for a certain period, the final result has been very unfavorable. Children are often injured as a result instead of being benefited. The same thing may occur as the result of cicatrization following an operation for epilepsy.

The Secretary: The President has with him a short paper on "Physical Culture" that I wish we might hear.

The President: I should like to present a case, and also to read a selection from a letter written by our teacher of physical culture to a friend of hers, after she had been six weeks or two months with us. I asked her to give me a copy of that part bearing on the difference between teaching physical culture to normal and to abnormal children. She is a woman who has had much experience. She is a pupil of a Boston school, and for some time had charge of this work in the Indianapolis public schools.

The President then read the history of the case to which he had referred, as illustrating the advantage of the treatment; also, a letter from Miss Manley, teacher of physical culture at Fort Wayne, to her former instructor in this training, as follows:

"I am sure you will like to know some of the differences I have found in teaching normal and feeble-minded children. It may interest your pupils, especially if any of them think of undertaking this line of physical training.

"The first requisite in a teacher of the feeble-minded is patience. What is taught to-day may not make an impression that will last even until to-morrow. It is only with perseverance that success finally comes.

"In the higher grades of the school the training has been such that I realize very little difference in the ability of the children to receive and execute commands from that of normal children, so I shall write of the average children in the school.

"A lesson in Swedish gymnastics, taken from twenty to thirty minutes each day, by normal children, will usually be done in good form in a week or ten days. The same lesson will not be done as well by feeble-minded in three weeks.

"Balance movements are the most difficult for them, and require more time than any other exercises in the lesson, because they lack muscular control. The movements, 'Heels—lift,' 'Knees—bend,' 'Knees—stretch,' 'Heels—sink,' which normal children usually do readily, few of these children do in good form after three months.

"'Opening ranks,' is rarely satisfactorily done. The slow minds move less promptly than the brighter ones, making an irregular performance. It is very difficult to teach precision and rapidity of action, but perseverance shows that they are responsive.

"Feeble-minded children are not to be relied upon. One day a class will march so well and exercise in such good form that I feel I am succeeding beyond expectation. The next day I wonder if the class can possibly be the same I had yesterday.

"The need for individual work is much greater among the feeble-minded, for there are so many physical deformities. These also retard progress in class work. Spinal curvatures, drooping heads, sunken chests, all need special exercise.

"The children have usually a slovenly gait which is the result of low vitality. Straightening up brings self-respect and mental quickening, so I give more marching than I would to normal children, in order to improve the carriage of their bodies, at the same time giving greater freedom of movement.

"A class of normal children take exercises by command, while the feeble-minded must have a leader to follow until the command comes to mean the movement, and a memory is established in the muscles. Few of the low grade children can follow a leader, but a passive movement done by the teacher, at the same time giving the command for the movement, often

results in an effort to do the movement when the command is heard.

"Commendation and an appreciation of every effort put forth stimulate to greater exertion, and impress the special exercise commended. After many trials and ultimate success a boy of low grade jumped up and clapped his hands when I said, 'O John, that was fine!' I was as pleased as John.

"An effort means so much with these children. Blanche fairly quivers with exultation when I say, 'You are a very good girl,' after she has made an effort in the right direction.

"With some children it is impossible to hold their attention after an exercise has been done three or four times. Another exercise must be tried, or some other means used to awaken an interest.

"I feel that I am only beginning in this work with the feeble-minded, but the results encourage me to persevere."

Dr. Rogers: I feel a great deal of interest in this subject of physical culture for our schools. We have all learned from experience and observation that generally the best physical culture for our children comes from the natural activities of their daily life—shop-work and farm work and the everyday performance of simple duties that involve physical exercises. I am at the present time having one of my teachers take a course of instruction in medical gymnastics, with the idea of preparing her, not only for the special physical development of certain children that require it and cannot obtain it otherwise, but, in addition to that, to give a course of instruction to our teachers and attendants, so that the proper methods of physical development can be carried out in the classes as they should be, to a more limited extent, under the personal direction of the teacher. I believe that in all of our schoolrooms there should be an application of the very highest art that the teacher represents. I should be glad to see the same idea carried out with all of our teachers. They should be specialists

whose influence as such should be felt, through their assistants and the attendants, throughout the institution.

A paper on "The Border Line between Sanity and Insanity" was read by Dr. H. F. McDowell.

The President: This is a specially interesting subject for those in charge of institutions. It is as much our duty to send away those who are able to live outside as to keep those who ought not to be sent away. We must be able to make up our minds as to the border land. We should like to hear what Judge Miller has to say on this subject.

Judge Miller: Complaint was made to me about a year ago that a certain single man, about thirty-five, ought to be put in restraint for surely of the peace. I investigated the matter, and found that that was not the trouble. He was at the jail, and I took two good physicians, and told them I wanted them to investigate the case for I feared they were trying to commit a man who ought not to be committed, and I wanted their honest opinion. They talked with him on various subjects, and both agreed that he ought to be set free. Then I said to the man: "This physician wants to buy a driving horse which you have. You have eight of all ages, and but three are broken. He will pay you a good price for it." He replied: "I don't want to sell any." I said: "He will give you \$250, and I think that is more than it is worth." "I tell you I don't want to sell any," he answered. "Well," I said, "he will take the five-year-old, that has never been broken. He will give you \$200 for it." He said he didn't want to sell it. "Well," I said, "you have a four-year-old filly that he will buy." But no, he would not sell any. Then I said: "If you don't dispose of those horses, I am going to send you to the asylum for the insane." "You have no right to do so," he said; "I want to keep my horses, and I have a right to." Now, he had a father of seventy and a mother of about the same age. They lived on a little farm of fifty acres, and he was the only child. The year before he had

absolutely quit work with all of these horses, from a year old up, several of them unbroken. He would not do a stroke of work, and yet would persist in feeding the grain of his father to these horses. He kept them standing in the barn. An officer of the society for the prevention of cruelty to animals compelled him to turn them out of the barn in summer, but when the officer had gone he put them in again. When he had used up all of his father's feed, grain and straw, the old man was not able to buy any more, and the young man had nothing to buy with. All that he had was the horses and the carriage, and he would not sell nor would he go to work. He would attend to the horses, and then he would go up to his room and stay. At noon he would look after his horses, eat his dinner, and go back to his room and stay till evening. He would occasionally go to church, and occasionally drive to town; but he would not dispose of a thing, and would not work a stroke. He would not do anything to earn a living for the horses, and he would not sell them.

"If you will not do anything, nor sell a horse," I said to him, "I will send you to the asylum for the insane, and appoint a committee to sell those horses." "It will not be good for the man that sells them when I come back," he answered.

I asked the doctors what they thought then. They answered: "He is insane." Yet aside from that one thing,—that he would persist in keeping eight head of horses with nothing to eat and that he would not work to get them feed,—he is as intelligent in his way as any man you will meet.

Dr. Polglase: It is hard to trust a man who departs so entirely from what is right. It seems to me a type of insanity.

Dr. Knight: What is his disposition toward his father?

Answer: He will not talk to him.

Question: Is the young man ugly?

Answer: No, he never manifested that disposition. When any one would talk to him about these things he would walk

away and go to his room. His father wanted me to do something about it. When the sheriff was sent for him, the fellow would not put on his coat. The sheriff told him that the judge wanted to see him to talk to him on business, but it made no difference. It was very cold weather, but he would not put on a coat, and so they wrapped him up, and brought him in that condition. He never had any bad habits; does not drink.

Question: Had he ever earned his living?

Answer: Up to two years ago he worked as any farmer's son works. He used to trade horses and began to breed them and trot them. He bred all these horses that he has. Finally he would not do anything else.

Question: Has this come from any acute disease?

Answer: No.

Question: Is there any family history of insanity?

Answer: I do not know; I did not investigate that. The interesting thing to me is the ease with which you can prove a man sane or insane. The physicians would have certified to me at once that the man is not insane, and ought not to be confined at all; but they did not know anything about this horse business.

Question: Did they make any physical examination?

Answer: No.

Mr. Letchworth: If we were called on to put on an over-coat when we did not want to I think we should resist. I think that was not very strong evidence of insanity.

Judge Miller: What would you say to a farmer who had a family to support, with his father and mother unable to work, with stock on his hands, and a small piece of land, who absolutely sat down and would not work though he was physically able; who would not sell anything that he had; who would not put forth a single effort to maintain his own existence or to keep the property round him? That man is not sane. There is some mental defect.

Dr. Fernald: The story puts me in mind of the hard cider drinkers, who never get drunk, but who drink enough to get ossification of their mental and moral nature. It would be difficult to commit them as insane, but they are ugly and unmanageable. What is the method of committing?

Judge Miller: The court appoints a physician, a lawyer and a layman, and they make an investigation, and if they report to me that, in their opinion, the man is insane, and that the safety of himself and others necessitates his confinement, the court ordinarily accepts that as true. We seldom go back of that. I do not know of a case in my experience on the bench or in my practice as a lawyer where any one has contested that. There is a shorter plan. The man goes before two physicians and the physicians make an examination, and if they report that he is insane, and that the safety of the man and of his family require his commitment, he is committed. They may, of course, bring him out under habeas corpus. It is easy to get them into an insane asylum in Pennsylvania.

Question: Do the physicians have to give reasons for adjudging the man insane?

Answer: I do not know.

Dr. Murdoch: No, he simply says that he is insane, and that detention in the insane asylum is necessary. It is not necessary to say, "for the purpose of treatment," but because it is unsafe for himself and his friends. The doctor must be a physician in practice for five years, and must swear to his statement.

Judge Miller: I practically stopped committing by physicians when it was to be at the expense of the county. They do it only when the expense is to be borne by the friends of the patient.

Dr. Keating: I know a case parallel to that which has been mentioned. An old man of sixty-five, who has a habit of keeping cows and will not raise anything else. He will not raise any corn. He has 150 acres and turns the cows all out to

pasture. He milks them and throws the milk away. He does his own cooking and will not have any farm help. He has lived there forty years, and never injured any one, but he will not let any one come on to his place. His brother buys grain for him. He raises calves and occasionally will sell some and buy a suit of clothes, but otherwise he will not do anything.

Dr. Rogers: I suppose the question is often, not so much a purely scientific one,—whether such people are just over the border line,—as whether they ought not for the public good to be placed under some sort of guardianship. I suppose Judge Miller's interpretation of the condition is, that a man who is as insane as the one he mentions is a danger to the community. Of course, that is a matter concerning which it is difficult to judge. I should think the family history would throw some light on it. There is no doubt that there are many insane people, apparently harmless, who may be dangerous to the community. Some incident is liable to bring out the dangerous tendency when least expected. The Judge's position is one which gives the public the benefit of the doubt at least, and is further justified by the patient's rapidly drifting to a condition of dependency.

Judge Miller: If a man will not work some one has got to keep him, and it is cheaper at an institution than elsewhere.

A paper on "Physical Culture for the Feeble-Minded," by Dr. Luther Gulick, formerly of Springfield, was read by Dr. Fernald.

The President: That will be a very useful paper for the "Journal."

Dr. Murdoch: I hope that it will appear there, for I shall be glad to read it.

Dr. Polglase: People are beginning to recognize the importance of physical education, but we take a step beyond that, and believe that it not only produces the highest type of physique, but it helps to bring about those conditions which put off old age.

The President: We have a special school for our lady employes, conducted by our teacher of physical training. We have thirty members of the class. It meets every Wednesday evening for an hour. We see an improvement in the physique of our lady employes, and the importance of the example we set is very great. What we do has ten times the importance of what we say.

Dr. Fernald: There is a great deal about physical training that we do not know yet. We are compelled to put feeble-minded children under artificial conditions of living, and we do not obtain the natural physical development which a healthy child gets from the activities of its daily life. I believe we get the most benefit from the natural play of the children in the play-ground. I attach secondary importance to the work done in our gymnasiums; just as soon as the children can be turned outdoors I give up my evening gymnasium classes and turn them out, with the teachers to direct them in play, and I believe we get more good from it.

Miss Gundry: I had a case of a boy six years old who would not walk. He was always clinging to everything he came in contact with—catching at my dress or chairs. One day I put him up in the branches of a small tree. He screamed, and I took him down again. Then I put him up again, and he clung to the branches. After that he learned to climb the tree himself, and now he is a splendid runner. He learned to walk by learning to climb a tree.

Dr. Murdoch: A case of atavism.

Question: Did he have systematic work otherwise?

Miss Gundry: Oh yes, we did everything for him.

On motion, Dr. W. N. Bullard and Hon. W. P. Letchworth were elected active members of the Association.

On motion of Dr. Fernald, Dr. Barr and Dr. Bullard were added to the committee on etiological blanks.

Adjourned at one o'clock.

THIRD SESSION. ·

WEDNESDAY AFTERNOON, MAY 30, 1900.

The session was called to order at 3 p. m. The President read the annual address, entitled "How May We Secure Efficient Administration?"

DISCUSSION.

Dr. Rogers: I think the address is full of suggestion, and exactly in harmony with what we all believe in. I have been trying to impress my teachers with the idea of studying every case with reference to what the children *do*, not in *theorizing* as to what they can do. I want them to bring in notes to teachers' meetings with facts and observations. It has been one of the most difficult things for all of us, and I include myself, to carefully observe and note facts. The tendency with all of us is to have some preconceived ideas and theories, and try to shape our work to those ideas; but while the facts are sometimes dry, the results are more interesting than the theories. My teachers have developed an unusual amount of interest in the matter of careful notes of actual observations. This is in line with what our President has been talking of.

Dr. McDowell: I have heard about combining hygiene, education and medicine, but sometimes it strikes me that we do not combine them at all. Each one of us hurries on in his own way. The doctor deals out drugs and the teacher deals out knowledge, and perhaps some one else is looking out for the hygiene of the institution, and we do not get any combination of these three things as we ought to do. I know nothing, or not very much, about the education department. I do not think the average teacher knows as much about the medical

part of the work as she ought to, or about the various phases of feeble-mindedness. It seems to me we ought all to know more about the other departments. We ought to have some sort of system by which we can be trained a little without interfering with each other's work. What effort is made in that particular line, or is none made, or does each one go along and do his own work, and not know very much about any other?

The President called on Dr. Fernald to answer that question.

Dr. Fernald: I think the paper which the President has read illustrates in a striking way what we all try to do, assuming that the superintendent knows what he wants to get: Our own ideas carried out, plus the personality of the teachers and helpers in the school. I think in a large institution the tendency is to smother the individuality, of the teachers especially, as well as of the medical officers. I think we are successful, inasmuch as we coördinate the medical and educational features of this work. I have been particularly impressed with this very valuable suggestion which came out as the result of this "drag-net." I made a mental resolve, as I heard it, to go home and do the same thing.

Dr. Barnett said he had been very much pleased with the paper, and hoped it would appear in an early number of the "Journal," or that he could print it at once in his institution paper. As to the proposition that the superintendent and his subordinate officers should coöperate, Dr. Barnett said that he was a subordinate officer working under a superintendent of the largest heart and most generous sympathies, a man whom any subordinate in his institution can reach at any hour, day or night, with the feeling of comfort with which a child goes to its mother. That seemed to him one of the most important points in connection with an institution, that there should be such relations between the superintendent and subordinates. The subordinates should also feel that the responsibility of the

institution rests in part upon them. No one man can successfully manage a large institution. Having been a public school teacher, Dr. Barnett said, he was specially interested in the educational work in an institution. There should be more coördination between the educational, medical and hygienic departments, and he thought one means to secure that would be to have subordinates from each department attend the National Association meeting to get inspiration.

Dr. Polglase said in all institutions there were class distinctions, manage it as one would. He asked whether any institution had general conferences relating to the training of children.

Dr. Murdoch: We have a weekly conference, consisting of the assistant physician, principal teacher, matron, steward and housekeeper, before whom matters of general interest to the institution are brought and discussed. We have not had one of these meetings for some time, but we did have them every week, and I think I shall revive them, for they were of great benefit to me, and I hope to the other officers.

The President: We have a morning staff meeting. We meet in the office at 7:30—members of the school, the matron and the physician. The supervisors come in, and bring their daily reports from each division. Any particular instances that come up are discussed quite freely. This is not so much for purposes of general policy as for the disposal of particular cases. These meetings are very helpful. I think a more formal and leisurely plan might be better. I remember when I was going to make a change, necessitated by the establishment of our boys' colony, that I called a conference, and we discussed all the details of moving the boys on to the girls' side and the girls to the side where the boys had been. Each department was represented, the domestic, laundry, sewing, etc. At first we thought there would be too many objections, but after long discussion and various suggestions we decided to do

it, and when it was done found the whole thing worked better than before.

Dr. McDowell: The only idea I had was to learn how we could combine a general knowledge of hygiene and educational training and a knowledge of the imbecile, so that those who know their own side well may be better posted in regard to the other two branches.

Dr. Rogers: Does Dr. McDowell mean a knowledge of particular cases?

Dr. McDowell: No, general knowledge.

Dr. Rogers: I have been trying to do this with reference to the coördination of different departments with regard to special children. We have an admission blank that is printed in sections, detachable. Each has a description of the child. One is given as a receipt to the parents, and one goes to each department. One of these slips is for the assistant physician, who makes a careful examination of the child, and it is entered in a record in his department. The psychologist takes the same child, and makes a careful examination and a record. The principal teacher has the same slip, and she makes an entirely independent record after her examination. After the first week there are usually data enough for each to get the benefit of the others' record, and so there is coördination with regard to every child. One of my hobbies has been, as soon as our new hospital is completed, to have every new child stay two weeks there, to cover possible incubation of infectious disease, and to afford an opportunity to complete these records. By the end of that time we should know how to classify the child.

A paper on "Institution Construction and Organization" was read by Dr. A. W. Wilmarth of Chippewa Falls, Wis.

DISCUSSION.

The President: I notice that in the paper there was no mention of the disposition of sewage by gravel beds. That is

perfectly efficacious. It takes very little ground. A few acres will take care of a large town, and it is perfectly innocuous. The micro-organisms have disposed of the matter, and the water can go into a stream without hurting it.

Dr. Knight: Suppose you have no gravel bed?

Dr. Wilmarth: Where those are to be had it is the best system, only you lose the fertilizing material. If it is placed on the soil there must be a large distributing area. You will in some parts of the country have to go a great distance to get gravel beds.

Dr. Fernald: Coal ashes may be used in place of gravel. The town of Gardner, Massachusetts, disposes of its sewage on an area of less than an acre properly prepared with sand. Our state board of health, which has made a good many investigations regarding sewage disposal, has laid it down that you cannot utilize the sewage and expect a profit. If you can dispose of it you are lucky. Any attempt to raise crops is generally unsatisfactory.

Plumbing is another important matter. I am in favor of the wrought iron pipes for waste pipes, with screw joints. The plumbers are prejudiced against it, because it becomes a simple question of piping which any man who can handle a pipe-cutting machine can do. The history of this system is a long struggle between the architects and the plumbers. In the city buildings ten, twelve and fourteen stories high, this system is used almost exclusively. The expansion and contraction of the pipes in such buildings would start every lead joint in the building. In putting up our last four buildings we have called for an alternate bid specifying lead joint plumbing and the screw joint system, and we have never had any difference in the estimates. If you have the lead joints in a laundry the alternation of hot and cold water from the washers will start every joint.

Dr. Wilmarth omitted to speak of shower baths in place of

tubs. Tub^s are expensive to install and maintain, and we are taking them all out, very much to the delight of the children. If you see a group of children after going through a shower bath, and see their rosy faces and bright eyes, and compare that with the tired look of institution children after tub baths; and if you compare the satisfaction of the attendants with the different methods, you would be convinced. It takes at least twenty gallons for a satisfactory tub bath. By actual measurement it takes but three or four gallons to give a good shower bath, and the children are in clean water all the time. If you have an automatic arrangement for tempering the water there is no danger of scalding the children. It is impossible to scald a child with a proper shower bath. The day of bath tubs in an institution has gone by. We use overhead sprays, and the room pitches toward the center.

Question: Can you use iron pipes?

Dr. Fernald: We use galvanized iron pipes.

Dr. Rogers: Our pipes cost as much as the tubs, for we have to have them nickel^ed on account of the hard water. What system do you use?

Dr. Fernald: If you use the Gegenstrom system you can use water at ninety-five degrees, say, and it will not vary in the least. It costs from fifty to sixty dollars for a shower with two sprays. You can bathe fifty children per hour. We are now building a tank in which the water will be mixed at the proper temperature, with the showers at the bottom of the tank. This is the cheapest way. Our children take the greatest pleasure in these baths, and our employes also. We allow the employes a bath tub, but they go down and take their baths in the children's shower baths, pretty good evidence that it is a luxury.

In regard to the floors, I like an asphalt floor. It is expensive, but it is lasting. It is plastic, and if it is properly

laid it contracts and expands and you do not get any cracks. We have a base of eight inches on the sides also.

If I were to apply all of the paper we have just heard to our farm colony, I should be on the defensive, for we are going to put our boys on the farm into small wooden houses with wood stoves and open fires. We have five thousand cords of wood on the place. The buildings are one story, and the boys could escape easily in case of fire as there are three doors to each dormitory.

Dr. Wilmarth: In regard to the shower bath, we have two pipes which go up into it, and at a certain point they end in a perforated ring. We have never had a trace of an accident, and if economy of water and comfort and cleanliness are concerned, the shower bath is the thing. We have a slate bathroom with a slatted door.

Dr. Rogers: Our difficulty was that we could not get anything cheap enough. The only thing in the market was a needle bath which cost \$150, and while we had three put in, they were not what we wanted when we got them. We cannot make the pipe of iron because the lime fills up the perforations. We are trying brass pipes drilled, and by getting rid of plumbers' prejudices I think we shall have some respectable shower baths installed. For brighter boys it is not a bad idea to have a sort of swimming hall in the basement, with shower attachment. This can be constructed cheaply, and would combine a good deal of pleasure with profit. I do not know how to compare asphalt with tile, but certainly the tile is very satisfactory for bathrooms.

Dr. Wilmarth: Asphalt is absorbent. It will absorb odors as well as tile.

Dr. Fernald: The cheap asphalt will, the best will not.

Dr. Rogers: I was under the impression that all those things had been found to be absorbent except slate. The trouble with slate is that it is gloomy. We have four rooms

with slate floors, but they are so fearfully gloomy that we dislike them.

Dr. Polglase: I presume you know the Toby heater. That does all the work for you. It can be regulated to the fraction of a degree as to the temperature and its work is always satisfactory. It has to be cleaned occasionally if you have water that deposits a scale. We use one in the central laundry, and have supplied five buildings with this one heater. The nicest thing about it is, that when you are not using the water it cuts itself off.

Mr. Letchworth: I should like to give my indorsement to what has been said in favor of shower baths. I have given a good deal of attention to this subject, and I am satisfied that the shower bath is the process by which inmates of our charitable institutions should be bathed. The system is much more perfect than the old way. It gives a clean bath. If a person is given a bath in a tub, even with plenty of water, in drawing off the water the impurities are left on the water line and on the walls of the tub, and sometimes they will be removed and sometimes they will not be by the attendant. I have known institutions where they were in the habit of giving four or five baths in the same tub of water. There is always a temptation to hurry on the part of the attendant. It is a laborious and disagreeable task to supervise the baths, and see that everything is done thoroughly. With the Gegenstrom system there is no danger whatever from using water of an improper temperature. I do not know of a case where they have been objected to where they have been adopted. From twenty-five to fifty children can be bathed in one bathroom, properly constructed and arranged, and decency and order maintained, and a good wholesome bath given in water that is absolutely pure, and with a result that is satisfactory. I have known institutions where, within three hours, nine hundred persons have been thoroughly bathed in this way. It seems to me that, if I were a director of an institu-

tion for the feeble-minded, I should put in shower baths and should take out the old system as soon as I could. They should be in every institution in the land. Whether you have cement or asphalt floors does not make so much difference. I have found cement satisfactory.

The question of the disposition of sewage I have looked into, not only in this country, but in England, Ireland, France and other countries, and I am familiar with the Waring and other systems, and I think the disposal of sewage is yet an unsolved problem. It is one of the great questions of the day, this disposal of the waste of institutions, especially where the institutions are large, and especially when they are near cities or in danger of polluting water supply. I think it is a subject worthy the attention of every scientific man.

Dr. Carson: The Syracuse institution is in the line. We are to have a general bathhouse, with shower baths.

Dr. Barnett: We have taken out nearly all the tubs and have shower baths, and our experience is very satisfactory. I might say that our attention was called to this matter by a neighboring institution, in which eighty per cent of the institution were afflicted with contagious disease, with no other assignable cause. The physician thought it was traceable to the old fashioned tubs. When the attendant is in a hurry, he is not always careful to let all the water drain away, and to clean the bath tub thoroughly before putting in another child. It requires less than a third of the time to bathe six hundred children, and, of course, we do not use near the amount of water, and the baths are perfectly satisfactory.

Dr. Murdoch: Last year I visited Randall's Island institution. There they use the shower baths, and instead of basins they have a perforated pipe which pours out water into a basin that has no plug to it. The children wash their hands at this little jet of water. From a hygienic point of view this seemed admirable. Each child had an individual towel marked with a number.

Dr. Barnett: We have that system of washing.

Dr. Keating: The experience of the managers of the Second Hospital for the Insane in our state is, that vitrified tiling is absolutely nonabsorbent. They guarantee it. The only point where it could be absorbent would be the cement where it is put together.

Dr. Polglase: I have tried tiles by weighing them before and after having them in water, and they do absorb water.

Miss Gundry: We use a perforated ring, and the tub has no stopper. The ring rests on the shoulders and holds itself.

Dr. Fernald: We have moved twenty-five boys up to our farm colony, and they are going to bathe in the brook during the summer until the permanent bath house is completed. We have made a wooden shanty for use on cold days. In this temporary house are two hogsheads, one filled with hot water and one with cold. We mix a pailful of water of the right temperature, and get a splendid spray bath by using a Johnson hand pump with a spray nozzle. The first day it was rather cold, and I was worried about the temperature of the room, but in five minutes the room was at the exact temperature of the spray, ninety-five degrees.

Adjourned at 5:30.

INFORMAL SESSION.

WEDNESDAY EVENING.

At 8 o'clock Wednesday evening an entertainment was given by the school—a Christmas play, after which the Association was called together informally, and brief speeches were made by different people.

The first speaker was Hon. W. P. Letchworth, who thanked the Association for electing him an active member. He also thanked the trustees of the Polk Institution for the hospitality

which had been extended to himself personally, as well as to the Association, and congratulated them on having such a man as Dr. Murdoch at the head of the institution.

Dr. Keating followed in the same strain, thanking the teachers also for the entertainment prepared by them and given by the children.

Dr. Polglase said that this was his second visit to the institution, and he was delighted with the progress that had been made in two years. He thought the meeting itself had been an unusually good one thus far.

A unanimous vote of thanks was then given to the trustees.

In response Judge Miller spoke as follows in behalf of the trustees:

If you knew how little the trustees have to do with this institution, and how fully they trust Dr. Murdoch and those associated with him, that vote would have been extended to Dr. Murdoch and his assistants. I have been connected with this institution as a trustee nearly three years. The management of the institution, the employing of teachers, everything of that kind, has been exclusively done by Dr. Murdoch. We go on the principle that if he is not able to decide all these things better than the trustees could, he is not the person to be at the head of the institution. We have never in a single instance attempted to tie his hands in any direction. Everything that has been accomplished, and everything that we hope to accomplish, is due to him and his assistants, and no one knows as well as Dr. Murdoch how little the trustees have done.

It is a delight to be here. I have associated from my boyhood with men older than myself, except on this occasion, and this day has been one of the pleasantest I have passed for many a year. I came expecting to be rather bored, I confess, but I was willing to bear the infliction because I sometimes inflict that sort of punishment upon others. When I get twelve men together in a box, I say things to them sometimes that I

would not dare to say if I did not have them where they dared not leave me. But I want to say that it has been a delightful occasion, and I have come to the conclusion that those in charge of the feeble-minded of this country have been well selected and are doing admirable work.

Mr. Bradberry: When we took hold of this work two names were suggested as men capable of engineering it. It took a good deal of work to make the board believe that a young man was the proper one to put at the head of a new institution, but we selected Dr. Murdoch. After we had laid the foundation he has built what we see to-day. We simply want to put things in the right light. As a member of our board I feel proud of our institution. It is wonderful how the work grows. Five years ago I knew nothing about it. I had been engaged in school work. When the first invoice of children came, 155 of them, I met them, and it made me feel sad to see them brought to an institution. But as I have seen the institution grow, I have felt that we have not been working in vain.

It has been very gratifying to the trustees to have this Association hold its annual meeting at Polk.

Dr. Murdoch added a word, corroborating the statement that it was a pleasure to have the Association meet at Polk.

President Jackson said that, as a trustee, he wanted to say that he agreed with Judge Miller in attributing the success of the institution to Dr. Murdoch.

Dr. Dunlap expressed her gratification with all that she had seen, and Mrs. Barrows added a few words of gratitude on behalf of the ladies.

Dr. Geo. H. Knight referred to the death of Supt. S. Olin Garrison, of Vineland, N. J., and suggested the appointment of a committee on memorial.

Dr. Keating paid a tribute to Mr. Letchworth and his noble public spirit, and congratulated the Association that he had consented to become an active member of it.

Dr. Rogers, Dr. Barnett, and Dr. Polglase spoke briefly. A vote of thanks to the matron and the musicians was passed, and at ten o'clock the meeting adjourned.

LAST SESSION.

THURSDAY MORNING, MAY 31, 1900.

The Association was called to order at 9:30 a. m. by the President. The committee on time and place reported through the chairman, Dr. Knight, in favor of holding the next meeting in Baltimore, Md., near the time of the meeting of the National Conference of Charities and Correction in Washington.

The report was unanimously adopted.

The following committee on program was announced: Dr. Murdoch, Miss Gundry, Dr. Barnett.

The following committee on the "Journal" was announced: Dr. Carson, Dr. Rogers and Dr. Fernald.

Dr. Carson reported for the committee that it was in favor of continuing the staff of last year with Dr. Rogers as editor in chief. Voted.

The treasurer's report was presented by Dr. Rogers, and on motion adopted.

Dr. Rogers: I received a letter from Dr. Fort protesting against the five-dollar-due, but think it came from a little misunderstanding. He had an idea that the most of the money was used for the Association instead of for the "Journal." As I explained last year, if I had more time I could get more advertising for the "Journal," but there will be a time when that will drop anyway and there will be little except cards from private institutions. If the dues are kept up we shall keep on enlarging our journal, and the character of the illustrations

It will be more dignified if we do not have any advertising at all. If the members wish to cut down the advertising they can do so.

The President said that the Association was under deep obligation to Dr. Rogers, and he thought more clerical aid ought to be given him by the Association.

On motion, it was voted that Dr. Rogers should be empowered to use for clerical assistance such sum as can be spared from the amount provided for the publication of the "Journal."

The committee on organization reported the names of the following persons for officers of the Association, who were elected by the unanimous adoption of the report:

Dr. W. A. Polglase, President; Dr. F. W. Keating, Vice President; Dr. A. C. Rogers, Secretary and Treasurer; Mrs. Isabel C. Barrows, Official Reporter.

Dr. Polglase and Dr. Keating expressed their thanks to the Association in brief remarks. Dr. Polglase said that he hoped as many members as possible would attend the sessions of the National Conference of Charities. At the recent meeting of that Conference in Topeka there was a great deal of inquiry about institutions for the feeble-minded, and the day devoted to that subject was one of the most interesting and well attended. The members of this Association ought to be present at such gatherings, to take part in discussions pertaining to the care of the feeble-minded.

Dr. Fernald presented a paper by E. W. Taylor, on "The Brains of Two Cases of Low Grade Idiocy," which was read by title, and referred to the publication committee.

Dr. Dunlap read a paper by Dr. Walter Channing, on "Special Classes for Mentally Defective School Children."

Dr. Fernald: Dr. Channing has been from the start very much interested in the auxiliary schools of Germany, Scotland and England. There is now a very strong movement in the east, in New York, Philadelphia, Worcester, Boston and Provi-

dence, in the way of introducing these auxiliary schools, not for the feeble-minded, but as a means of training backward children who do not now enter our institutions—who do not keep up with the school classes. In Boston we have two schools established three years ago. In Providence there are three such schools. They are very successfully conducted. In Worcester, in connection with the state normal school, and in Springfield, they have several. They are day schools for backward children. From those classes we receive many applicants. The parents with a backward child are reluctant to send him a hundred miles away to an institution at that early age. I have a strong feeling that in our institutions, even the best of them, whatever else we do for the child, we deprive him of contact with the outside world, and our artificial conditions do not do for the child's development some things that are done by associating with other children. It makes them more like other children. I have seen in these classes that in some ways they are doing things for those children that we cannot do for children of the same class. We are planning to have an examination of the public school children made to determine how many actually backward and incorrigible children there are in Boston, something after the manner of the investigations of Warner in London. I think the result will be many special schools in Boston. I heartily indorse this method of teaching these children.

Dr. Dunlap: There is one such school in New Jersey, under Miss Bancroft.

A letter from Dr. Ireland was read by Dr. Carson.

A paper entitled, "Report of Three Cases of the Opium Habit in Feeble-Minded Boys," was read by Dr. Carson.

Dr. Dunlap: I have had experience with women who had the opium habit. They are untruthful, and you cannot depend on a word they say. They will also steal.

Dr. Rogers presented a paper on "A Study of Mongolian Types," with a series of photographs.

Dr. Fernald read by title a paper by Mrs. Rhoda Esten, on "Backward Children in the Public Schools."

A number of Mongolian children from the institution were brought in to illustrate the subject of "Mongolian Types."

Dr. Fernald: One characteristic of Mongolian idiots is the extreme laxity of the ligaments. Another is that they prefer to sit cross-legged.

A paper on "The Case of John, Mongolian Type," by Miss Fannie King, of Orange, N. J., was read by the President.

A paper on "A Study of the Senses of the Feeble-Minded," by A. R. T. Wylie, Faribault, Minn., was read by title.

The President said that he wished that a series of tests, which could be easily applied, might be prepared for use in institutions. If these were uniform the results could be collated for the different institutions.

Dr. Wilmarth and Dr. Polglase were of opinion that such tests could be prepared.

The President asked Dr. Rogers what sort of a perimeter he used.

Dr. Rogers: A home-made one.

Dr. Polglase: There are several that are to be had easily.

Dr. Rogers: We should like to have good instruments for this branch of work, but our appropriation was but two hundred dollars for instruments for psychology, and so we have made a number of them ourselves. Mr. Wylie is making a large number of experiments, but he is not willing to report them yet. He is working at them ten hours a day, besides his routine work.

I am in sympathy with the idea of having a committee formed to study this side of our work. I move therefore that the chair appoint a standing committee of three on psychological research among the feeble-minded.

The President: We ought to have a blank, with not more than fifteen or twenty questions, that every member of the Association should be requested to fill out.

The motion was seconded, and unanimously adopted.

The President appointed Mr. A. R. T. Wylie chairman, and associated with him Dr. McDowell and Dr. Wilmarth as a committee on psychical research.

Adjourned at 12 m. sine die.

TREASURER'S REPORT—1898-1899.

CASH DR.

Balance on hand (<i>Journal of Psycho-Asthenics</i> , Vol.	
IV., No. 1).....	\$59.05
To Cash—Dues	170.10
To Cash—Journals, board copies, proceedings, and advertising	98.70
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	\$327.85

CASH CR.

By stenographic reports.....	\$35.00
By Index Medicus.....	12.50
By printing	156.79
By telegram to headquarters.....	6.05
By postage and express.....	4.85
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	\$215.19
Balance on hand.....	112.66
	<hr/>
	\$327.85

Miss Mary Taylor Cobb, daughter of Mrs. Helen Cobb, and Dr. Edward Peyton Wilbur, son of Dr. and Mrs. C. T. Wilbur, were married April 13th, at the home of the bride's mother, in Kalamazoo, Mich. They have the best wishes of the "Journal."



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